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# The GLIDER PILOT TRAINING PROGRAM

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1941 to 1943

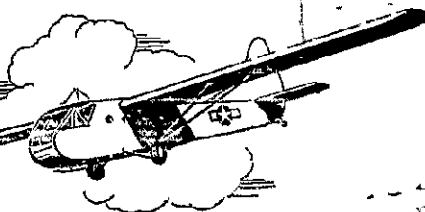
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Army Air Forces

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DATE 10 APR '44



The original of this monograph and documents from which it was written are in the USAF Historical Division, Archives Branch, Bldg. 914, Maxwell Air Force Base, Alabama.

PREPARED BY  
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ARMY AIR FORCES HISTORICAL STUDIES: NO. 1

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ATTN: Archives Branch  
Maxwell AFB, Alabama

RETURN TO

THE GLIDER PILOT TRAINING PROGRAM,  
1941 to 1943

Prepared by  
Assistant Chief of Air Staff, Intelligence  
Historical Division  
September, 1943

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## TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
INTRODUCTION . . . . .	1
I THE EXPERIMENTAL GLIDER PROGRAM, February 25, 1941 . . . . .	4
Inception of the Program . . . . .	4
First Experimental Training . . . . .	5
Plans for Future Training . . . . .	5-7
Further Experimental Training . . . . .	7
The 150 Officer-pilot Program . . . . .	7-9
Summary . . . . .	10
II THE 1,000 GLIDER PILOT PROGRAM, February 19, 1942 . . . . .	11
Plans for a Glider Echelon . . . . .	11
Training Plan . . . . .	11-12
Procurement Basis . . . . .	12
Program Inauguration . . . . .	12-13
Administrative Changes . . . . .	13
Summary . . . . .	13
III THE 4,200 GLIDER PILOT PROGRAM, April 1, 1942 . . . . .	14
Tripling of the Program . . . . .	14-15
Procurement Basis . . . . .	15-16
Establishment of Schools . . . . .	16
Program of Instruction . . . . .	16
Material Requirements . . . . .	17
Summary . . . . .	17
IV THE 6,000 GLIDER PILOT PROGRAM, May 8, 1942 . . . . .	18
Increased Objective . . . . .	18
Establishment of Schools . . . . .	18-20
Combat Training of the Glider Pilot . . . . .	20
Program of Instruction, Preliminary Schools . . . . .	20-21
Program of Instruction, Elementary-Advanced Schools . . . . .	21-22
Light Airplane Requirements . . . . .	22
Procurement of Personnel . . . . .	22-23
Procurement Plan, Air Forces Personnel . . . . .	23
Procurement Plan, Civilian Applicants . . . . .	23-24
Procurement Plan, Army Ground Forces and Services of Supply Personnel . . . . .	24
Status of Procurement Effort . . . . .	25
New Training Plan and Procurement Basis . . . . .	25-26
Inauguration of Class B Training . . . . .	27
Programs of Instruction, Class B Training . . . . .	27-28
Administration of Dual Training . . . . .	28
Application Inducements . . . . .	28-29
Personnel Procedures . . . . .	29
Shortage of Equipment . . . . .	29
Revised Training Schedule . . . . .	29-30
Potential Training Estimates . . . . .	30
Training Problems . . . . .	30-31
Summary . . . . .	31

SECRET

C4-2555,AF

UNCLASSIFIED UNRESTRICTED

SECURITY INFORMATION

SECRET

<u>Chapter</u>	<u>Page</u>
IX THE FEBRUARY 18, 1943, REVISION OF THE GLIDER PILOT TRAINING OBJECTIVE AND THE DISPOSITION OF EXCESS GLIDER PERSONNEL . . . . .	58
New Governing Factors . . . . .	58
Recommendations of the Operations Division . . . . .	58
Recommendations of Troop Carrier Command . . . . .	58-59
Recommendations of A-3 . . . . .	59
Recommendations of the Flying Training Command . . . . .	59
Recommendations of Conference to Determine Glider Program . . . . .	59-60
Recommendations of Board to Determine Glider Program . . . . .	60-61
Revision of the Glider Program . . . . .	61-62
Effectuation of the Revision . . . . .	62
Disposition of Excess Glider Personnel . . . . .	62-64
The Glider Survey Board . . . . .	65-67
Summary . . . . .	67
X THE REVISED GLIDER PILOT TRAINING PROGRAM, February 18, 1943 . . . . .	68
Administrative Changes . . . . .	68
Status of Advanced Training . . . . .	68
Advanced Program of Instruction . . . . .	68-70
Program of Instruction, Consolidated Glider Pool . . . . .	70-71
Glider Maintenance Course . . . . .	71
Materiel Requirements . . . . .	71-72
Revision of Advanced Training Program . . . . .	72-73
Plans for 1944 Glider Program . . . . .	73-74
The 1944 Glider Program . . . . .	74-75
Measurement of Production . . . . .	75
Summary . . . . .	75
XI THE OPERATIONAL TRAINING OF THE GLIDER PILOT . . . . .	76
Plans for Operational Training . . . . .	76
Administration of Operational Training . . . . .	76-77
Availability of Materiel . . . . .	77
Operational Training Program . . . . .	77-78
Status of Operational Training . . . . .	78
Personnel Problems . . . . .	78-79
Establishment of Glider Pilot Combat Training Unit . . . . .	79-80
Program of Instruction, Glider Pilot Combat Training Unit . . . . .	80-81
Plans for Future Troop Carrier Training . . . . .	81
Summary . . . . .	81
XII TACTICAL TESTING AND EMPLOYMENT OF THE GLIDER . . . . .	82
Status of the Glider . . . . .	82
First Tactical Employment . . . . .	82
Maneuvers of 101st Airborne Division . . . . .	82-83
Plans for Conclusive Demonstration . . . . .	83
Laurinburg-Maxton Demonstration . . . . .	83-84
Refinement of the CG-4A . . . . .	84

- III -

SECRET

C4-2555,AF

**RESTRICTED**  
SECURITY INFORMATION

**SECRET**

LIST OF ILLUSTRATIONS

	<u>Following Page</u>
Planned Tactical Employment of Gliders . . . . .	12
Dead Stick Landing Practice . . . . .	20
Flow of Students through Glider Schools June 15, 1942 - Sept. 14, 1942 . . . . .	22
Converted Cub Type Gliders . . . . .	28
Flow of Students through Schools, Sept. 14, 1942 - Feb. 26, 1943	42
The CG-4A Glider . . . . .	50
Gliders in Flight . . . . .	70
Ground Combat Training . . . . .	80
Glider Pickup Device . . . . .	84

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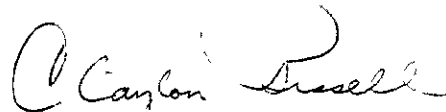
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FOREWORD

It is the desire of the President, the Secretary of War, and the Commanding General, Army Air Forces, that a solid record of the experiences of the AAF be compiled. This is one of a series of studies prepared as a "first narrative" in the projected over-all history of the Army Air Forces.

The decision to make the information contained herein available for staff and operational use without delay has prevented recourse to some primary sources. Readers familiar with this subject matter are invited to contribute additional facts, interpretations, and constructive suggestions.

This study will be handled in strict compliance with AR 380-5.



CLAYTON BISSELL  
Major General, U. S. Army  
Assistant Chief of Air Staff,  
Intelligence

Constructive criticisms and additional facts and interpretations are requested. To that end perforated sheets properly addressed are included in the appendix.

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## INTRODUCTION

For hundreds of years men had tried to emulate the flight of the birds, but it was not until the last years of the nineteenth century and the first decade of the twentieth that a few daring individuals began to experiment successfully with gliding flight. Foremost among these were Otto Lilienthal in Germany and Octave Chanute and the Wright brothers in the United States. But with the development of powered flight and the subsequent concentration on military aviation during World War I, progress in the art of glider flying and the evolution of the glider all but stopped.

As early as 1909, however, a group of German schoolboys began to develop gliding as a sport. After the World War and the consequent restrictions placed on powered aviation in Germany, the gliding movement in that country commenced to gather momentum until by 1922 the first true sailplane had been designed and tested. Interest in gliding spread to France and England, but soon subsided, and it remained for Germany to develop the techniques of gliding and soaring throughout the twenties.

Motorless flight was again introduced to the United States in 1928 by a group of German pilots. A wave of enthusiasm for gliding and soaring swept the country. Soaring societies appeared overnight. As the civilian population became cognizant of the thrills and sport of gliding, the science of thermal soaring was mastered and goal flights were achieved.<sup>1</sup>

As early as 1929 civilian soaring enthusiasts began to advocate gliding as a safe and inexpensive means of preliminary power pilot training. In Germany, France, and other countries experiments and actual training along this line were being developed.<sup>2</sup> That year, in response to countless letters and queries, the Army Air Corps conducted a survey to determine the worth of glider training as an adjunct to power training.<sup>3</sup> The opinion of the personnel at Brooks Field, Texas, was:

It is not believed that any good purpose would be served by introducing the use of gliding in the Army flying schools. The objective of the Army flying schools is to train pilots to fly military airplanes. These planes are high powered and no beneficial result would ensue from training our student pilots in gliding.<sup>4</sup>

At March Field, California, instructor opinion was somewhat different; they believed that "the use of gliders offered more promise of being of value, particularly in developing a feeling of sustentation, than it did of being of no value."<sup>5</sup> Opinion at the Advanced School at Kelly Field, Texas, was that:

1. Lewin B. Barringer, Flight without Power, 1-12.
2. F. W. Pawlowski, Director of the National Glider Association, to Maj Gen. J. E. Fechet, Chief of the Air Corps, Aug. 1, 1929, in AAG 373 A, Glider Flying. (Chief of the Air Corps hereinafter cited as C/AC)
3. C/AC to D. F. Walker, Manager of the National Glider Association, June 15, 1929, in ibid.
4. 2nd Indorsement (Executive, Office Chief of Air Corps to Commanding Officer, Air Corps Training Center, June 15, 1929), Commanding Officer, Brooks Field, Texas, to Commanding Officer, Air Corps Training Center, July 8, 1929, in ibid. (Office Chief of Air Corps hereinafter cited as OCAC; Commanding Officer, Air Corps Training Center hereinafter cited as CO, ACTC).
5. 4th Indorsement (Executive, OCAC to CO, ACTC, June 15, 1929), CO, March Field, California, to CO, ACTC, July 23, 1929, in ibid.

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thousands of pilots in this country, who have not completed or taken any part of the flight training given in our Army and Navy flying schools, could successfully handle sail planes after release from the tow, as these craft have been employed by the Germans.<sup>13</sup>

Preoccupation with plans for civilian glider activities grew less with the increasing likelihood of American involvement in war and with the demonstration by the Germans of the offensive and supply capabilities of the military glider. Upon the entrance of the United States into World War II and the requisitioning of all civilian gliders by the government, thinking progressed from fostering civilian glider programs to the development of the military glider and the training of the military glider pilot.

Out of the rather sudden awareness that the glider might be a forceful weapon of war, a new and untried training program was begun. The time was hardly auspicious. With the lack of combat experience, the peacetime neglect of the military potentialities of the glider was ominous for a nation belatedly attempting to achieve adequate national defense. Specifically, there had been no drafting of workable training plans, no development and testing of the needed materiel, and no determination of the tactical role of the glider in combat operations. The requirements of the general expansion program, difficult as they were to achieve, had been drawn up without reference to diverting manpower and materiel to production of a glider echelon. Harmony with other programs had to be obtained. And by the time the few months of necessary preliminary planning and experimentation were drawing to a close, the United States was engaged in a global war. In the tremendous task of conversion of a still inadequately prepared nation to a wartime footing, it is small wonder that the glider program was launched on a rocky course. But the pressure of world events had, by early 1941, convinced prominent Air Corps leaders that the glider was a military weapon needed by the United States Army. Despite the obvious difficulties attendant to the development of the program, they began thinking in terms of procurement, training, and employment of a glider echelon. The glider pilot training effort is the burden of this study.

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13. Assistant Secretary of War for Air to W. S. Evans, June 16, 1941, in AAG 452.1 A, Gliders.

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First Experimental Training. From June 1 to 23, 1941, at the Elmira Gliding Area Soaring Corporation, Harris Hill, Elmira, New York, and the Lewis School of Aeronautics, Lockport, Illinois, the first experimental training of Air Corps officers in glider piloting took place. Twelve pilots were trained, four from the Materiel Division and eight from the 50th Transport Wing.<sup>8</sup> The training was similar to the course these institutions had been giving to their civilian students. At the Elmira Gliding Area Soaring Corporation

Initial instruction was given on single-place Franklin Utility Gliders with automobile tow. The glider was towed across the field at 50 mph and the pilot required to keep the glider on the ground although he had sufficient speed to fly. Successive series of tows permitted the pilot to go 1, 5, 10, 30, 75, 150, 300, and 500 feet off the ground. After releasing the tow rope, the pilot would practice approaches and spot landing during the descent. After approximately eight hours of flying in Franklin Utility Gliders, the instruction was shifted to two-place Schweizer Sailplanes. The student occupied the front cockpit with the instructor in the rear cockpit. Instruction continued with winch, automobile, and airplane tows. When possible, the student would 'slope soar' or seek 'thermal activity' to prolong his flight. After demonstrating proficiency, students flew these sailplanes solo from the front cockpit. Dual sailplane airplane tows were made using Waco trainer with a 220 hp Continental engine. Each student completed eight hours of dual tow work, and had at least one hour as pilot of the tow plane. The flying of gliders in formation behind a tow plane did not present many new problems over formation flying. The operation of the tow airplane did introduce many new conditions. The last part of the instruction program consisted of a cross country flight. All students made at least one cross country flight which terminated on an airport at least 40 miles away.<sup>9</sup>

The initial instruction at the Lewis School of Aeronautics

was given by instructor in the rear cockpit of the sailplane. The latter was launched by winch tow. After three winch tows, the student was allowed to solo, with emphasis on spot landings and accuracy approaches. After approximately ten hours of flying time with winch launches, the student was given initial airplane tows under the instructor's supervision. During the first two hours of airplane tow, the instructor gave instruction in thermal soaring as the glider was descending. After demonstrating proficiency, students flew solo on airplane tows with practice air work such as spins, stalls, and loops. Airplane tows were made using a Waco trainer with 220 H. P. engine. Each student completed at least ten hours of airplane tow and all students had at least one soaring flight of two hours.<sup>10</sup>

Plans for Future Training. This early experimental period of the first procurement of gliders and the training of the first twelve glider pilots was characterized by an absence of any detailed plan for the future training of glider pilots. The Materiel Division, concerned over the need of glider pilots for its experimental work, on June 14, 1941, urged the Training and Operations Division and Plans Division, Office Chief of Air

8. R&R, OCAC to Deputy Chief of Staff for Air, June 13, 1941, in AAG 452.1 A, Gliders.

9. Memorandum Report, Materiel Division, Serial Number EXP-M-51-AD867, June 25, 1941, in AAG 353.9 A, Glider Training.

10. Memorandum Report, Materiel Division, Serial Number EXP-M-51-AD867, Add. 2, June 26, 1941, in *ibid.*

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The plan, however, proved to be abortive, for on July 26 General Johnson informed General Connolly of the following Air Corps decision:

After further study and consideration of the problem involved, it is believed that all training insofar as the Air Corps is concerned should be confined to the training of personnel who are in the Military Service . . . utilizing such commercial facilities as are needed and suitable.<sup>20</sup>

Further Experimental Training. Early in July arrangements were made for a second class of officers to receive glider pilot training at Elmira. Arrangements at first indicate that ten officers were to take this course,<sup>21</sup> but it appears that it was given to twelve instructors from the training centers, who it was contemplated would later be used as instructors or supervisors upon further expansion of glider pilot training. The training, conducted in two classes of six students each, was completed September 20, 1941.<sup>22</sup>

At this time the Office Chief of Air Corps prepared the first program of instruction for glider pilots. This program was naturally tentative and subject to change as the techniques of military glider flying were developed. The duration of the course was not to exceed four weeks, and its objective was to qualify the officer-pilot to the degree of proficiency necessary for an instructor or supervisor of glider flying training. The scope of the program included

qualification in the art of glider flying to include winch, auto, and airplane tow, the art of thermal soaring with particular emphasis on spot landing proficiency and dual airplane towing practice. Qualification in the duties of a ground supervisor to include use and care of equipment. Qualification in the duties of an air instructor and pilot of the tow plane.

Actual flying instruction was to last 25 to 30 hours, with 1 hour of familiarization, 9 hours of winch and auto tow, 2 1/2 hours of single airplane tow and 5 of double, one two-hour cross-country flight of at least 30 miles, and 5 1/2 to 15 1/2 hours of ridge and thermal soaring.

The ground school course, which was to be "given in the classroom or on the flying field in conjunction with daily flying activities," was to include aerodynamics pertaining to sailplanes and gliders, description of types of gliders and sailplanes with emphasis on efficiency, take-off technique methods, landing techniques, soaring meteorology, instruments and their uses, slope soaring, and thermal soaring. Familiarization with Lewin B. Barringer's book, Flight without Power, was also required.<sup>23</sup> Actually this course differed little from that given in the past by civilian soaring schools.

The 150 Officer-Pilot Program. By July 7, 1941, the glider program had progressed far enough to necessitate definite plans for the training of instructor personnel for the contemplated future production of glider pilots. On that date General Arnold directed Brigadier General Carl Spaatz, Chief of the Air Staff, to expedite the preparation of a directive outlining the requirements of the Air Forces for glider pilots. In order that full advantage might be taken of the civil glider schools already in operation, and so that the Training

20. General Johnson to General Connolly, July 26, 1941, in *ibid.*

21. Memo for Chief of Statistics Branch, General Staff by Executive, OCAC, July 8, 1941, in AAG 452.1 A, Gliders.

22. 1st Indorsement (Asst. AG, West Coast Air Corps Training Center to C/AC, Sept 20, 1941), T&O to Commanding General, West Coast Air Corps Training Center, Sept. 26, 1941, in AAG 353.9 A, Glider Training. (Commanding General, West Coast Air Corps Training Center hereinafter cited as CG, WCACTC).

23. Program of Instruction for the Training of Air Corps Officer-Pilots in Glider Flying at Civil Contract Schools, July 16, 1941, in *ibid.*

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Area Soaring Corporation was investigating sites for winter glider training.<sup>31</sup> Twenty-nine Palms Air Academy, Twenty-nine Palms, California, was selected, and a contract negotiated in September. This contract provided for the training of 126 officer-pilots, the first class to enter November 30, 1941, and the last March 21, 1942.<sup>32</sup> At this time an Advanced School was not considered necessary, but sites were being investigated.<sup>33</sup>

Training at Twenty-nine Palms did not begin as scheduled. Around the first of January, 1942, a refresher course was conducted for the civilian glider instructors, and initial student training commenced the nineteenth of that month with a class of twelve students.<sup>34</sup> Two weeks later a class of eighteen entered, and thereafter, classes of twenty-four every two weeks.<sup>35</sup>

The students, all volunteers from the instructors at the training centers, were given a four-week course. Instruction was similar to that at Elmira, with thirty hours of flying and training in the four methods of launching gliders: auto pull, pulley tow, winch tow, and airplane tow.<sup>36</sup> Naturally, at this time the curriculum for glider training was still in the experimental stage. Procurement of military type gliders was just getting under way, and the only men in this country familiar with the technique of glider flying were the civilian soaring enthusiasts who had been developing the art of thermal soaring over the past ten years. Consequently, training at Twenty-nine Palms was given in sailplanes and consisted principally of soaring, a type of training that later proved of little value in military glider piloting. During this period the glider training program, as well as other Air Forces programs, suffered from a severe lack of training equipment, in this case gliders and tow planes.<sup>37</sup>

One of the reasons for the early confusion and indecision which characterized the glider program was the fact that gliders and the training of glider pilots was entirely foreign to Air Corps personnel. There also seems to have existed then--and throughout the entire program--a disinclination on the part of various Air Forces agencies to take proper responsibility for its achievement. The basis for this situation can probably be found in the ever-present antipathy of the power pilot toward any other type of aircraft. Another cause of difficulty was perhaps that the glider program was a borderline project, a case of divided responsibility between the Ground and Air Arms.

This early confusion was alleviated considerably in October, 1941, when General Arnold personally summoned Lewin B. Barringer to Washington to act in a civilian capacity as coordinator of the glider program. Barringer was one of the outstanding authorities on the art of gliding in the United States. He was commissioned a major in May, 1942, and assigned to the Office of the Director of Air Support in full charge of all matters pertaining to gliders. Barringer continued in this position until January, 1943, when the plane in which he was flying to England was lost over the Caribbean.<sup>38</sup> To him must go much of the credit for the achievement of a new and tremendous project. Not only did he play a large part in the development of the glider production and training programs, but he also "made possible the practical application of a device which enabled an airplane in flight to pick up a tow-glider on the ground."<sup>39</sup>

31. R&R No. 7, T&O to C/AC, Sept. 15, 1941, in *ibid.*

32. R&R, T&O to Materiel Division, Sept. 22, 1941, in *ibid.*

33. R&R No. 7, T&O to C/AC, Sept. 15, 1941, in *ibid.*

34. Telegram, Commanding General, Army Air Forces Flying Training Command to C/AC, Dec. 29, 1941, in Army Air Forces Flying Training Command Files. (Army Air Forces Flying Training Command hereinafter cited as AAFBTC).

35. Telegram, General W. R. Weaver, to CG, WCACTC, Jan. 2, 1942, in *ibid.*

36. WD Press Release, March 18, 1942.

37. Sketch by Maj. D. M. Hamilton, June 17, 1942, in AAFBTC Files.

38. Col. R. F. Stearley to Commanding General, Army Air Forces, April 22, 1943, in AAG 201, Lewin B. Barringer. (Commanding General, Army Air Forces hereinafter cited as CG,AAF).

39. Citation for Distinguished Service Medal, May 8, 1943, in *ibid.*

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## Chapter II

### THE 1,000 GLIDER PILOT PROGRAM, FEBRUARY 19, 1942

Plans for a Glider Echelon. While the 150 Officer-pilot Program was still in the implementation stage, plans were being formulated to provide the United States Army with a new type of weapon, a glider echelon. On December 2, 1941, the plan for the first large glider program, the 1,000 Program, was forwarded from General Spaatz, Chief of the Air Staff, to the Chief of Staff with the concurrences of G-1, G-3, War Plans Division, and the Chief of Staff of the G.H.Q. Air Force. This program was based on "providing air transport by means of troop airplanes and gliders for one air-borne division at the earliest practicable date" and "providing air transport by airplanes and gliders for a second air-borne division by expansion or continuation of the program as dictated by the experience in providing the air transportation for the first air-borne division." <sup>1</sup>

At this time the tactics and techniques of airborne divisions were still in the experimental stage. It was estimated that approximately 75 per cent of the personnel and equipment of the average triangular division of 14,000 men could be carried in gliders and the remaining 25 per cent could be transported by the tow planes. In order to transport the division, therefore, 1,000 gliders and 292 transport planes would be required. Of the gliders, 500 were to be eight-place, transporting 3,500 troops, and the other 500, fifteen-place, transporting 7,000 troops. It was estimated that four eight-place or three fifteen-place gliders could be towed behind each transport.

Even at this early date the Air Forces realized that the glider program might interfere with other projected aircraft programs, although it was believed that it would not cause any serious delay or disruption. Procurement of military gliders was already under way, one static test and one flight test model of both the eight-and fifteen-place gliders being on order from each of four manufacturers. Delivery of these gliders to the Materiel Division for testing and evaluation was expected between December 1, 1941, and March 1, 1942. It was estimated that the necessary experiments could not be completed before July 1, 1942. In view of the fact that the aircraft industry lacked the requisite experience and engineering knowledge for the manufacture of the large gliders, it was expected that it would take at least fifteen months to produce the 1,000 gliders. Provided that the Materiel Division would be able to place orders by April, 1942, it was estimated "that a sufficient number of gliders for an infantry test air-landing battalion can be produced by November 1, 1943."

The plan for the 1,000 Program was predicated on the belief that sufficient transport planes would be available for use as tow planes in the testing, pilot training, and operational training phases of the program. The facilities of the Douglas Company, producers of C-47 airplanes, were already being utilized under existing procurement schedules and would continue to be until January, 1943. It was believed, however, that the program could be carried out by transferring planes from other uses and by Douglas production between January and June, 1943. <sup>2</sup>

Training Plan. The plan also contained a program for glider pilot training. It did not contemplate the training of "other than qualified airplane pilots, preferably graduates of the Air Corps Flying Schools," due to the large amount of skill believed necessary to pilot gliders at night under instrument conditions and to land them in small fields. The plan outlined the following training program:

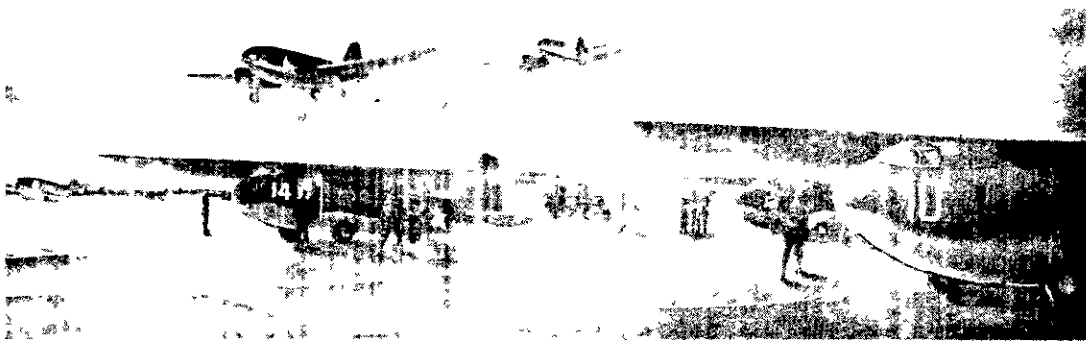
1. Memo for Chief of Staff by C/AS, Dec. 2, 1941, in AAG 452.1 A, Gliders.
2. Memo for Chief of Staff by C/AS, Tab "A", Dec. 2, 1941, in ibid.

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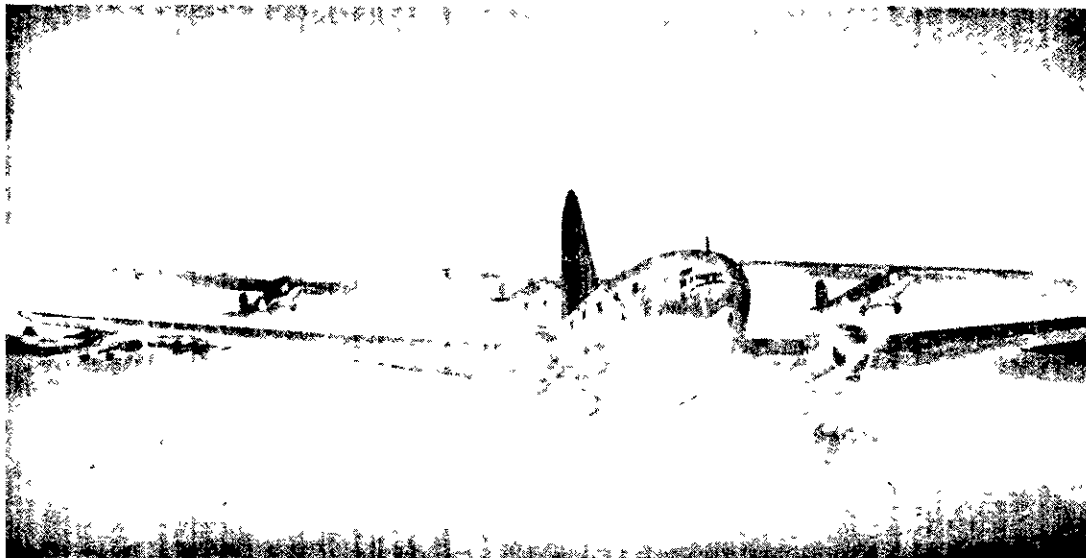
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Troop-carrying gliders load at dawn for an airborne operation. C-46 tow planes fly in from a dispersal field to hitch on.



C-46 transport takes off towing three fully loaded gliders.

When the Army Air Forces first laid its plans for the development of a glider echelon, little was known about the military employment of the glider except what had been gleaned from German use of this new secret weapon. The extensive program launched was subject to the errors of experimentation. Without knowledge of the performance characteristics of a transport plane towing military gliders singly or en-train, it was believed that a twin-engine plane could tow at least three fully loaded gliders. Plans for combat employment were based on this assumption. Great achievements were hoped for from this new airborne striking force, utilizing maximum offensive power with a minimum expense of powered equipment.

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already in training. Their training was to include a preliminary course of approximately thirty hours in two-place training gliders at Twenty-nine Palms and an advanced course in transport gliders at an Advanced School yet to be selected. The minimum requirements for application for this training were those proposed by the Training Division and approved by A-3 except that glider pilots must have at least fifty hours of glider time instead of thirty.<sup>8</sup> This was later changed to thirty hours glider time or 200 flights.<sup>9</sup> The physical requirements were to be the same as those for aircrew training. The trainees were to receive training in enlisted status and upon graduation be promoted to the grade of staff sergeant.<sup>10</sup>

Administrative Changes. Shortly after the entrance of the United States into World War II, action was initiated in Headquarters to provide an agency solely responsible for the rapidly expanding training activities of the Army Air Forces. The supervision of training activities was a function of the Chief of the Air Corps, but it was felt that in order "to give effective supervision and direction to this vast training effort, it is necessary that the Chief of the Air Corps deal with one commander, who will be unencumbered by other duties."<sup>11</sup> On January 23, 1942, therefore, the Air Corps Flying Training Command was established<sup>12</sup> under Major General Barton K. Yount, the former Commanding General of the West Coast Training Center.\*/ Thus, the individual training of the glider pilot became a function of the Flying Training Command.

Summary. With the planning and inauguration of the 1,000 Program, the glider pilot program progressed from experimental training of future instructors for a contemplated but yet unformulated project to a definite program based on the estimated requirements of an airborne division. Under this program many of the characteristic policies of the glider program were first established. These policies, although subject to subsequent changes in the glider pilot objective and influenced by fluctuation in the availability of personnel and materiel and the development of more efficient training methods, have remained essentially the same. Among the policies established were the personnel procurement basis of enlisted men with previous aviation experience, promotion upon graduation to the grade of staff sergeant, the rating of glider pilot, primary training at civil contract schools, and advanced training at Army schools. Future glider pilot programs followed the administrative pattern established under the 1,000 Program.

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8. AAF 580.7 Glider, Feb. 19, 1942.

9. Memo for Col. H. A. Johnson by Lt. Col. G. F. Schlatter, March 23, 1942, in AAFFTC Files.

10. AAF 580.7 Glider, Feb. 19, 1942.

11. Memo for Deputy Chief of Staff for Air by Acting C/AC, Dec. 23, 1941, in AAG 321.9 A, AF Technical Training Command, AF Flying Training Command.

12. AG 322.2 (1-4-42)MR-M-AAF/A-1, Jan. 23, 1942.

13. Acting C/AC to Maj. Gen. B. K. Yount, Jan. 18, 1942, in AAG 321.9 A, AF Technical Training Command, AF Flying Training Command.

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C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

13

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SECRET

C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

15

Command in an effort to expedite this program. In order to avoid replanning of the program and the consequent loss of time, on April 10 the Materiel Command requested that this figure be allowed to remain.<sup>5</sup> This request was granted April 22, 1942.<sup>6</sup>

In order that this mammoth training effort could be placed in operation as soon as possible, a directive dated April 1, 1942, over the signature of the Commanding General, Army Air Forces, ordered the Flying Training Command to train 4,200 glider pilots by July 1, 1943, 2,000 of whom were to be graduated by January 1. This entailed an increase of 3,200 over the previous program, as the 1,000 formerly directed were included in this figure. In conflict with the procurement policy of the 1,000 Program, as many as possible of these trainees were to be graduates of the Twin-engine Advanced Pilot Course of flight officer or commissioned grade.<sup>7</sup>

Procurement Basis. Two days later, however, the indecision which characterized this period again caused a change in procurement policy. All glider trainees were now to be enlisted graduates of the Air Forces Advanced Flying Schools. Advanced pilot graduates were specified for the following reasons:

1. Troop gliders now on procurement of 9 and 15-place type are roughly equivalent in size to a B-18 airplane.
2. 30-place experimental gliders with spans in excess of the B-17 are now under development.
3. Formation, night and instrument flying requirements will be commensurate to those required for airplane pilots.
4. Pilots must be provided at all stations to act as tug pilots. Glider pilots with this dual background can be utilized in this capacity.<sup>8</sup>

In compliance with this policy change, the Flying Training Command notified the Director of Personnel that there would have to be an immediate alteration in the supply of glider trainees. Under the 1,000 Program, graduates of the Civilian Pilot Training Program had been selected for training at Twenty-nine Palms beginning April 13. As the training of these men was now prohibited, forty-five enlisted pilots would have to be supplied for the April 13 class and additional students every two weeks thereafter.<sup>9</sup>

It was soon realized, however, that the transfer of 4,200 enlisted pilots to the glider program would seriously impair established pilot priorities. On April 11, therefore, the minimum requirements for glider pilot training were revised as follows:

1. Age 18 - 32 inclusive.
2. Physical: Class I
3. Flying experience: Meet one of the following:
  - a. Graduate of the CPT Secondary Course.
  - b. Hold or have held a private Airman Certificate or higher, with a 0 to 240 h.p. or 2 S rating.

5. CG,AFAMC to CG,AAF, April 10, 1942, in ibid.

6. Executive, AFAMC to Technical Executive, Wright Field, April 22, 1942, in ibid.

7. CG,AAF to CG,AAFFTC, April 1, 1942, in AAC 353.9 3A, Glider Training.

8. Director of Individual Training to CG,AAFFTC, April 3, 1942, in ibid. (Director of Individual Training hereinafter cited as AFRIT).

9. AG,AAFFTC to Director of Personnel, April 3, 1942, in ibid. (Director of Personnel hereinafter cited as AFDOP).

SECRET

C4 2555,AF



~~RESTRICTED~~  
SECURITY INFORMATION

SECRET

17

Materiel Requirements. The implementation and conduct of this new program required the maximum use of all available training gliders. The Flying Training Command, therefore, on April 25, 1942, requested that one suitable tow plane be made available for every three two-place gliders.<sup>16</sup> Early in May the Director of Ground-Air Support initiated action to provide the first twenty of the requested L-1A planes.<sup>17</sup> By this time, however, the glider pilot objective had been increased to such an extent that the tow plane needs of the Flying Training Command were completely changed.

Summary. Essentially, the 4,200 Glider Pilot Program constituted a continuation and expansion of the policies and facilities established under the 1,000 Glider Pilot Program. The belief that glider pilot trainees should be graduates of Service flying schools caused an attempt to return procurement to this basis, but rapid Air Forces expansion precluded its accomplishment. Although this program was in operation little over a month, training was effected, and a definite training program established which reflected the gradual, although small, development of Air Forces knowledge of glider training procedures and standards.

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16. AG,AAFFTC to AFRIT, April 25, 1942, in AAG 452.1 A, Gliders.

17. 1st Indorsement (AG,AAFFTC to AFRIT, April 25, 1942), AFRGS to CG,AAAFTC, May 9, 1942, in ibid.

SECRET

C4-2555,AF

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SECURITY INFORMATION

SECRET

1. Under the jurisdiction of the Commanding General, Southeast Air Forces Training Center.

	Capacity
Jolly Flying Service, Grand Forks, North Dakota	212
L. Miller-Wittig, Crookston, Minnesota	80
Fontana School of Aeronautics, Rochester, Minnesota	112
Hinck Flying Service, Inc., Monticello, Minnesota	112
North Aviation Company, Stillwater, Minnesota	112
Morey Airplane Company, Janesville, Wisconsin	112
Anderson Air Activities, Antigo, Wisconsin	140

2. Under the jurisdiction of the Commanding General, Gulf Coast Air Forces Training Center.

McFarland Flying Service, Pittsburg, Kansas	120
Ong Aircraft Corporation, Goodland, Kansas	240
Hunter Flying Service, Spencer, Iowa	160
Sooner Air Training Corporation, Okmulgee, Oklahoma	160
Harte Flying Service, Hays, Kansas	160
Anderson and Brennan Flying Service, Aberdeen, S. D.	160
Kenneth Starnes Flying Service, Loanoke, Arkansas	80

3. Under the jurisdiction of the Commanding General, West Coast Air Forces Training Center.

Plains Airways, Fort Morgan, Colorado	184
Cutter-Carr Flying Service, Clovis, New Mexico	184
Big Spring Flying Service, Big Spring, Texas	80
Clint Breedlove Aerial Service, Plainview, Texas <sup>6</sup>	152

To accomplish the new type of instruction on training and cargo type gliders, the training centers were instructed to establish new Army glider schools in addition to the two already operating. They were authorized to request additional enlisted personnel to staff the schools, but the instructors would have to be provided from graduates of the glider schools. These schools were to be in operation by July 6, 1942, and tentage was authorized as there was not time for permanent construction. By the first of June two new Elementary-Advanced Schools had already been opened. They were contract schools, the John H. Wilson Glider School, Lamesa, Texas, under the Gulf Coast Training Center, and the Arizona Gliding Academy, Wickenburg, Arizona, under the West Coast Training Center. These were in addition to the two already operating, Twenty-nine Palms, California, under the jurisdiction of the West Coast Training Center, and the Elmira Area Soaring Corporation now located at Mobile, Alabama, under the Southeast Training Center. Five additional Air Force Elementary-Advanced Schools were ready for occupation by July 6. They were at Amarillo, Texas, Waco, Texas, under Gulf Coast; Lockbourne, Ohio, under Southeast; and Fort Sumner, New Mexico, under the West Coast Training Center.

6. Maj. Lewin Barringer to Col. J. B. Ackerman, May 28, 1942, in AAG 353.9 3A, Glider Training.

7. AAFFTC to CG's, TC's, May 16, 1942, in AAFFTC Files.

8. AAFFTC Pilot Training Report, July 5, 1942, in AFTHD Files.

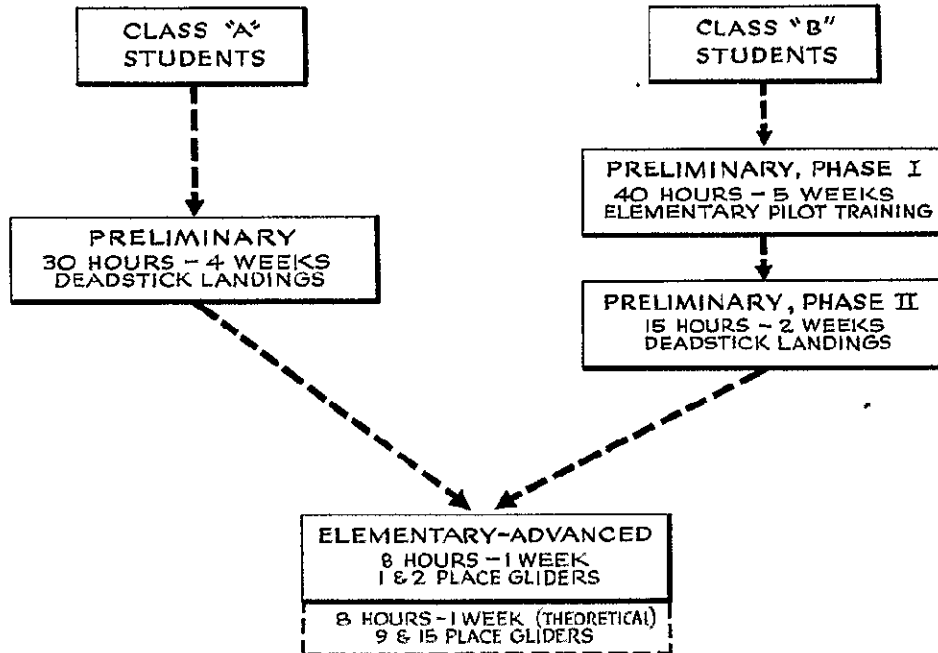
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# FLOW OF STUDENTS THROUGH GLIDER SCHOOLS

JUNE 15, 1942 - SEPT. 14, 1942



**CLASS "A" STUDENTS**  
AERIAL EXPERIENCE OF ONE OF  
THE FOLLOWING TYPES REQUIRED:

1. HOLDER OF CURRENTLY EFFECTIVE AIRMAN CERTIFICATE, PRIVATE GRADE OR HIGHER
2. HOLDER OF A LAPSED AIRMAN CERTIFICATE, PROVIDED THAT SUCH CERTIFICATE DID NOT LAPSE PRIOR TO JANUARY 1, 1941
3. HAVING COMPLETED 200 OR MORE GLIDER FLIGHTS
4. PILOT TRAINING ELIMINEES, PROVIDED THEY HAVE FIFTY HOURS AS PRINCIPAL PILOT OR STUDENT PILOT IN MILITARY OR NAVAL TYPE AIRCRAFT

**CLASS "B" STUDENTS**  
NO PREVIOUS AERIAL EXPERIENCE

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C4-2555, AF

SECRET

21

The thirty hours' flight instruction was intended to simulate glider flying as closely as possible. It was to be given for twenty days at one and one-half hours a day. Two hours were to be devoted to stalls and spins, and four hours to 180° approaches with the ignition turned off at 2,000 feet. The approaches were designed to develop approach patterns, putting the emphasis on high approaches and S turns and slips. Five hours were allotted to various approaches with the ignition turned off at 500, 1,000, 1,500, 2,000, and 3,000 feet. Five hours were also to be devoted to precision landings to a mark without the use of brakes and development of judgment of landing role, while "strange field landings from ignition off at 5,000 feet following navigation flight to 'ignition off point' short of landing field" were allotted five hours. To night landings from "ignition off point" at 2,000, 3,000, and 4,000 feet, five hours were also given. The remaining four hours of the course were to be distributed among the other phases of the course as training needs indicated.<sup>13</sup>

Actually the dead stick landing proved to be one of the most important phases in the training of the glider pilot. Once the motor was turned off the student had no recourse but to judge the approach correctly and achieve an accuracy landing. It was found that by requiring students to land precisely on a chalk mark on the field, they developed excellent judgment of distances and gliding range, qualities essential to proper glider pilotage.<sup>14</sup>

A sixty-hour course in ground school instruction was also included. This course called for twenty days' instruction at three hours a day. Field Manuals and Technical Manuals were listed as texts, and the training centers were directed to make every effort to supply each student with the necessary copies. This course was an improvement on previous ground school courses in that it better served to prepare the glider pilot as a member of the armed Service and for his eventual mission. It prescribed 10 hours of meteorology, 5 of navigation, 10 of maintenance, 2 of aircraft identification, 1 of chemical warfare defense, 4 of instruments, 20 of physical training, and 8 hours of customs of the Service, basic military indoctrination, and drill.<sup>15</sup>

These programs of instruction, however, were established merely as guides, and in no case were they rigidly followed. From conversations with glider personnel, it would seem that the contractors, in view of the terms of their contracts, were mainly interested in giving the required hours in the air to the students. Civilian instructors, due to the existence of other war training programs, were extremely difficult to secure. The desired ratio of instructors to students was placed at one to five, but the contractors were authorized verbally to operate with one instructor to seven and one-half students until additional trained instructors became available.<sup>16</sup> It would also appear that a very small percentage of the students received ground instruction, and what was received seems to have been very inadequate.

Program of Instruction, Elementary-Advanced Schools. The new two-week program of instruction for the Elementary-Advanced schools included both ground and flight school. The stated objective and scope of the course were exactly the same as those established under the previous program of April 15, 1942. The flight school, to operate for ten days at one hour and fifty-five minutes a day, was divided into two phases, elementary and advanced. The elementary course was similar to that given under the previous program, except that the addition of the light airplane gliding phase enabled the course to be shortened to eight hours and thirty minutes. Familiarization was allotted one hour. Only one hour instead of eight was to be devoted to precision landings from winch, pulley, or auto tow. Four

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13. Program of Instruction for the Training of Air Forces Personnel in Preliminary Glider (Civil Contract) Schools--Light Airplane Gliding Course, May 12, 1942, in *ibid*.
  14. Analysis of the Duties of Aircrew Personnel, Bulletin No. 9, The Psychological Division, Office of the Air Surgeon, Aug. 28, 1942.
  15. Program of Instruction for the Training of Air Forces Personnel in Preliminary Glider (Civil Contract) Schools--Light Airplane Gliding Course, May 12, 1942, in AAFFTC Files.
  16. AAFFTC to CG's, TC's, May 23, 1942, in *ibid*.

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Glider trainees ready for a morning of simulated glider flying.



Student prepares to execute gliding approach and dead stick landing from "ignition off point."



Dead stick accuracy landing to white marker on the field.

The light airplane gliding course, established because of the lack of training gliders, proved to be of great value. It enabled the student to develop skill in accuracy landings and judgment of distances and gliding range.

SECRET

23

On May 9 The Adjutant General was requested to launch an extensive publicity campaign. The Civil Aeronautics Administration was also contacted and in cooperation with Military Personnel began the circularizing of approximately 85,000 Airman Certificate holders on record with that office.<sup>23</sup>

Procurement Plan, Air Forces Personnel. On May 11, 1942, a circular letter was sent to the Commanders of all Posts, Stations, Activities and Higher Headquarters of the Army Air Forces in the continental United States. This letter outlined the enormity of the program and urged that all qualified personnel be encouraged to apply for this training at once. The training was to be open to all officers and enlisted men who were citizens, eighteen to thirty-five years of age, and who had not been eliminated from a Service or civilian flying school. Aerial experience of one of the following types was required.

1. Holder of currently effective Airman Certificate, private grade or better.
2. Holder of lapsed Airman Certificate, provided that such certificate did not lapse prior to January 1, 1942.
3. Having completed 200 or more glider flights.

Candidates must be able to pass the physical examination for flying duty, Class II or better. Enlisted applicants must be able to make a score of 110 or better on the Army General Classification Test.<sup>24</sup>

Only five days later this letter was amended, and the qualifications were reduced to tap a larger reservoir of prospective trainees. The period of lapse of the Airman Certificate was pushed back to January 1, 1941, and glider pilot training was no longer closed to those who had been eliminated from pilot training for flying deficiency provided they had flown as principal pilot or student pilot for at least fifty hours in military or naval type aircraft. Officers and enlisted men were to train in grade, and upon graduation the enlisted men were to be promoted to the grade of staff sergeant and rated as glider pilots. If the enlisted student held one of the first three grades, he would maintain that grade upon graduation.<sup>25</sup>

In an effort to make glider pilot training more attractive and thereby increase the number of applicants, this letter was further amended on June 5. Selected graduates were to be appointed officers in the Army of the United States. "Demonstration of soldierly qualities of leadership, judgment, force and discipline will be the criteria upon which such appointments are based."<sup>26</sup>

Procurement Plan, Civilian Applicants. Eight days after receipt of the directive of May 8, 1942, the procurement plan for the enlistment of civilian applicants had been planned, organized, and placed in operation. The Civil Aeronautics Administration was circularizing approximately eighty-five thousand Airman Certificate holders on record with that office. If the prospective trainee expressed interest in glider training, and if examination of the applicant's qualifications indicated adequate aerial experience and general requirements, the C.A.A. certified the applicant as generally suited for this training. Upon presentation of the certification to his local Army recruiting office, the applicant was accepted for enlistment and issued an authorization for travel to one of seventeen Air Force stations. The seventeen stations designated for processing were: McChord Field, Washington, Salinas Army Air Base, California; Army Air Base, Salt Lake City, Utah; March Field, California; Westover Field, Massachusetts; Mitchel Field, New York; Olmstead Field, Pennsylvania; Langley Field, Virginia,

23. Memo for AG by Military Personnel, May 9, 1942, in AAG 353.9 A, Glider Training. (Military Personnel hereinafter cited as AFPMP).

24. AAF 352, May 11, 1942.

25. AAF 352, May 16, 1942.

26. AAF 352, June 5, 1942.

SECRET

C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

25

Status of Procurement Effort. By the end of May it became apparent, in spite of the tremendous procurement effort on the part of the Director of Personnel, The Adjutant General, and the Civil Aeronautics Administration, that quotas for the first scheduled classes could not be met. By May 30 only seventy trainees had been ordered to the civilian schools.<sup>33</sup> Consequently, on June 1 the civil contract schools began operations on a reduced basis.<sup>34</sup> By the fourth of that month there were 228 students in training, but there was no backlog of students, and the program was already one week behind and short 1,100 candidates for the present classes alone. At this time it was hoped that the policy promulgated by A-1 to commission a certain number of graduates would encourage application when sufficiently circularized. So serious was the situation, however, that on June 4 the Director of Individual Training departed from time-honored military practice by recommending that immediate action be initiated to order to glider pilot training, without asking for volunteers, a sufficient number of qualified Army personnel from outside the Air Forces to meet the objective.<sup>35</sup>

A conference was held in the Office of the Assistant Chief of the Air Staff, A-1, on June 10 to devise further means for encouraging glider pilot applications. It was decided to make all members of the first class staff sergeants immediately, to intensify the campaign to secure volunteers from experienced pilots of light airplanes, to compile a list of aviation students who were willing to transfer to glider pilot instruction, and to reduce the physical requirements to those required by the Civil Aeronautics Administration.<sup>36</sup>

New Training Plan and Procurement Basis. Since only about one-third of the first weekly quota had reported for training by June 6, the Flying Training Command realized that the training plan established by the directive of May 8 could not possibly be fulfilled and submitted an alternate course of action. This new plan entailed entering all qualified applicants directly into the Elementary-Advanced Glider Schools. It was estimated that the Director of Personnel could fill approximately 30 per cent of the scheduled quotas for this type of personnel. In this way, the Elementary-Advanced Schools would graduate approximately one thousand pilots from the previously established four-week elementary course about August 17. By that time the Elementary Schools would begin to receive students from the Preliminary Schools and would change from the four-week elementary course to the two-week combination elementary-advanced course, as specified in the directive of May 8.

There still remained, however, 2000 glider pilots to be procured and trained to meet the 3,000 specified by September 1, 1942; therefore, the Flying Training Command proposed a new procurement basis. The Command suggested that applicants who had had no previous flying experience but who otherwise conformed to the present requirements be accepted for glider pilot training. This was indeed a departure from the day when only graduates of the Advanced Flying Schools were to be given glider pilot training. This new type of trainee was to be given an eight weeks' course consisting of airplane pilot training for five weeks and three weeks of dead stick landings in light airplanes. Then allowing one week for travel between glider schools, there would follow one week of elementary and one week of advanced glider training. The flying Training Command realized that this plan provided a sketchy training program for second quality personnel and admitted that it would undoubtedly be reflected in the final quality of the product. If approval of this new program were granted, the Command requested that the dead line for the final graduating class be extended two weeks, the final class graduating about October 12.

The Flying Training Command stated that it believed that under this new program the first objective could be reached by September 28 with a total of about thirty-two hundred trained glider pilots. In order to accomplish this objective, it would be

necessary for personnel to be procured and delivered at the rate of about 825 per week for four weeks beginning June 22, 1942, in addition to approximately 200 a week who have had previous aviation training.

33. Memo for Chief of Staff by AFRIT, May 30, 1942, in AAG 353.9 B, Glider Training.

34. Teletype, CG, AAFTC to CG's, TC's, May 30, 1942, in AAFTC Files.

35. R&R, AFRIT to C/AS, June 4, 1942, in AAG 353.9 3A, Glider Training.

36. A-1 Daily Report, June 10, 1942, in AAG 319.1, A-1 Daily Report.

SECRET

C4-2555,AF

RESTRICTED

SECRET

27

Inauguration of Class B Training. On June 15 the Flying Training Command directed the training centers to institute Class B training. As the first two phases of this training were to be different from the instruction given to Class A trainees, new programs of instruction were established. Phase I, elementary flying instruction in Preliminary Light Airplane Gliding Schools, was to consist of forty hours' training in five weeks. Emphasis was to be placed on coordination and precision landings, and progress of the individual student was to be based on proficiency with all possible consideration given to any previous aviation experience, however small. The second phase, dead stick landings in the Preliminary Light Airplane Gliding School, was to consist of fifteen hours' training in two weeks. Students were then to be allowed one week for travel to the Elementary-Advanced Glider Schools, but this travel time was to be held to a minimum and utilized as far as possible for training purposes.

This change in the method of instruction was merely a matter of expediency--necessitated by the enormity of the objective and the difficulty of securing adequately qualified trainees. It was not to interfere in any way with the course established on May 16, 1942, for the training of men with the required aviation experience. It was realized that the administration of this dual training would be extremely difficult. Therefore, the training centers were given complete authority to arrange the training in a manner best suited to maintain proper balance of Class A and Class B students in the schools. For the present the thirty-hour elementary glider course was to continue in operation, as no graduate of the dead stick landing course would be available until July 6, 1942. These schools were to be continued at capacity operation with Class A students as far as available equipment would permit.<sup>44</sup> To allow implementation of this new program, the Materiel Command negotiated the necessary contract amendments to provide for an enlarged total capacity and the additional phase of instruction.<sup>45</sup> The schools' total capacity was now 3,336 students with a weekly entrance rate of 834.<sup>46</sup>

Programs of Instruction, Class B Training. The first phase of the preliminary course for Class B students was designed to serve as a substitute for the previous flying training required of Class A students. Its objective was to produce a graduate "qualified to operate light airplanes, both night and day, and . . . qualified to service these airplanes in the field." Forty hours of flight school, twenty-five days at one hour and thirty-six minutes a day, was prescribed. This included nineteen hours of dual and twenty-one of solo training. The course was similar to the preliminary flying training given by the Civil Aeronautics Administration, although particular emphasis was to be placed on the attainment of proficiency in spot landings.

Ground school instruction was placed at seventy-five hours. The subjects, the amount of time to be devoted to each, and the texts were to be the same as prescribed for Class A students in the preliminary light airplane gliding course. As many of these students entered the glider pilot program directly from civil life, an attempt was made to give them some basic military training. To physical training twenty-five hours were to be devoted and sixteen to customs of the Service, basic military indoctrination, and drill.<sup>47</sup>

The second phase of instruction for Class B students, the dead stick landing course, was an abbreviated form of that given to Class A trainees. The hours specified for flying training were halved to fifteen, the duration reduced from five to two weeks. The review necessary for Class A students was eliminated. Instruction in all other maneuvers was retained except that the time to be allotted to each was decreased.

44. AG,AAFFTC to CG's, TC's, June 15, 1942, in AAFFTC Files.

45. Unsigned letter to CG,AFAMC, July 4, 1942, in *ibid*.

46. Appendix V to letter, AG,AAFFTC to CG's, TC's, June 15, 1942, in *ibid*.

47. Program of Instruction for the Training of Air Forces Personnel in Preliminary Glider (Civil Contract) Schools.

Phase I--Elementary Flying Course for Class "B" Students, June 12, 1942, in *ibid*.

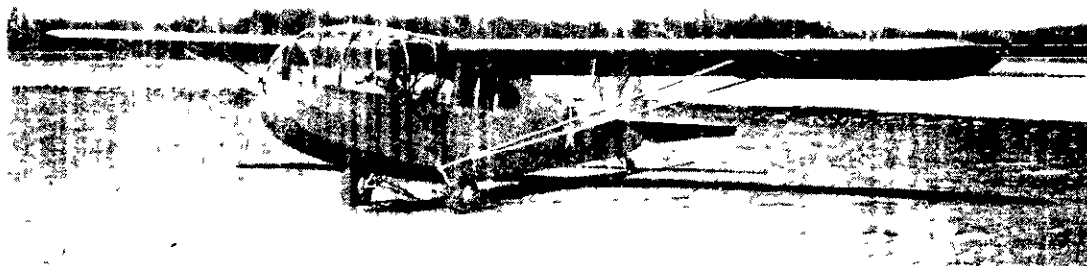
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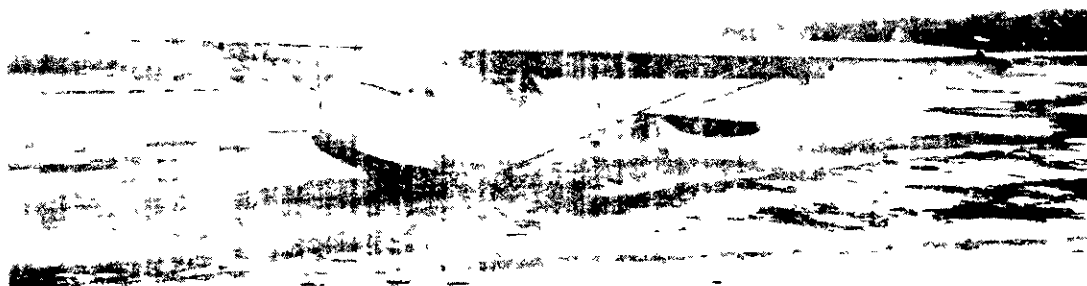




51-1 Stearman



16-1 Stearman



16-8 Piper

An increased training load necessitated more training-type gliders than were on hand or in production. To overcome the engines, three types of light airplanes were converted to completely satisfactory training-type gliders.

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SECURITY INFORMATION

SECRET

29

widen the procurement basis so extensively, the Air Forces found it almost obligatory to enlist all applicants physically and mentally qualified. The glittering publicity employed to energize the program--promises of high pay, rapid advancement, and adventure--brought in a type of man heretofore rarely found among the ranks of Air Forces pilot personnel. From conversations with trainees it would seem that many of the prospective glider pilots joined the program for just these reasons or in the belief that glider pilotage would prove a lucrative occupation in postwar aviation. This situation is perhaps one of the contributing factors to the extreme morale and disciplinary problems that later characterized the program.

Personnel Procedures. During this early period the growth of the glider program necessitated the establishment of certain personnel procedures. In September, 1941, action was initiated to establish the rating of glider pilot.<sup>56</sup> This rating was later authorized, and an appropriate aviation badge approved. During June, 1942, however, it was decided that glider pilots would not be given ratings but issued certificates. This ruling created a storm of protest among the individuals closely connected with the program, as it was felt that Headquarters was breaking faith with its previous promises to the glider trainees. Finally, in September the rating was re-established.<sup>57</sup> In May, 1942, glider trainees were extended the same benefits and legislative provisions as aviation students, including \$10,000 government life insurance.<sup>58</sup>

The question of flight pay for glider trainees and pilots, with all its potential Congressional ramifications, also caused considerable discussion in the early days of the program. Authority for the payment of flying pay was granted in March, 1942,<sup>59</sup> but rated power pilots undergoing glider training had to perform the required number of flights and hours in the air to receive their flight pay.<sup>60</sup>

Shortage of Equipment. As training under the 6,000 Program began to get under way, early in July it became evident that the actual numbers of light airplanes on hand at the Preliminary Schools and tow planes and gliders at the Elementary-Advanced Schools would not take care of the increased training load and the constantly growing flow of trainees to the schools. Two attempts had been made to alleviate this situation. Three makes of light airplanes had been converted by removing the engine. These light planes, converted in this manner, possessed many of the characteristics of gliders and had proved to be quite satisfactory. All privately owned gliders in the United States of a satisfactory type had been secured either by purchase or condemnation. Many of these, however, were found to be in a state of disrepair and presented a major maintenance and repair problem. Due to the lack of equipment, students were collecting at the glider replacement centers and were having to be pooled there awaiting the time when they could be accommodated at the glider schools.<sup>61</sup>

Revised Training Schedule. Consequently, on July 13 and 14 a conference of representatives of the training centers was called at the Headquarters of the Flying Training Command. It was decided to discontinue entering students into the Preliminary Schools for the next three weeks, and to keep all preliminary graduates at these schools for further training until they could be accommodated at the Elementary-Advanced Glider Schools.<sup>62</sup> This was just the first indication of the tremendous materiel problem that was to play so great a part in the glider program--a problem brought about by lack of coordination of procurement of men and materiel.

56. Materiel Division, OCAC to Experimental Engineering Section, Wright Field, Sept. 8, 1941, in AAG 211 D, Pilots.

57. Project Book of the CG,AAFFTC.

58. Memo for CG,AAF by AFDOP, May 20, 1942, in AAG 353.9 B, Glider Training.

59. Memo for CG,AAFFTC by G-3, AAFFTC, April 10, 1942, in AAFFTC Files.

60. AAFFTC to CG,WCACTC, March 10, 1942, in *ibid.*

61. Memo for CG,AAFFTC by Col. G. F. Schlatter, July 15, 1942, in *ibid.*

62. *Ibid.*

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C4-2555,AF

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SECURITY INFORMATION

SECRET

31

Schools had been provided on the basis of two classes being present at one time; therefore, it was impractical to order elementary graduates to these stations to await further training.<sup>65</sup> Solution of some of these problems was to come with further revision of the glider pilot training objective.

Summary. In no other period as that from May 8 to July 18, 1942, when the 6,000 Program was in effect, did the glider program undergo so many significant changes. These changes were, in the majority, a result of the excessive requirements of the objective and the extremely short amount of time allotted to its execution. Old policies were modified, new ones introduced. In fact, all subsequent programs are but a modification of the production quotas and personnel procedures established. Future glider pilot objectives, with one exception, are but a downward revision of the production quotas of this program. The extensive widening of the procurement basis to secure applicants from all Arms of the Service and civilian life and the lowering of qualifications to admit trainees without previous aerial experience represents the high tide of procurement effort. Further procurement policies are marked by a narrowing of the basis and a tightening of qualifications. It cannot be said that the 6,000 Program is characterized by the most significant changes in the training program, for it was later subject to the dictates of other salient factors. But certain important developments did occur. Among these were the introduction of an entirely new type of training, the dead stick landing course, which, although brought about as a matter of expediency, proved to be of high value. Also under this program, the ground school developed more fully, and for the first time there was a realization of the need for preparing the glider pilot for his future combat duties. Under the 6,000 Program, the scarcity of materiel for the first time became a major factor in determining the future course of the glider program, a factor which was to grow both in stature and influence as glider pilot training progressed.

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65. Memo for AFRIT by Flying Training Section, Materiel Division, July 15, 1942, in AAG 353.9 C, Glider Training.

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As training progressed certain weaknesses became evident in the curriculum. It seems that there was not enough correlation between the preliminary glider and the glider schools. Student flying was suffering from inadequate instruction in signals and standard operating procedure. In flight training insufficient time was being devoted to precision flying and strange field landings. In the ground school the students were not taking an active enough part in the maintenance course. The Training Section of the Flying Training Command made an attempt to rectify these faults by directive,<sup>4</sup> but some of the weaknesses in the training program must of necessity be laid to inadequate materiel and training aids. For example, many of the schools were without instruments and therefore could not give the required hours in instrument training. This situation was recognized as unavoidable, and on August 26 the Elementary-Advanced Schools were authorized to graduate students without instrument training.<sup>5</sup>

When the glider training program was instituted, military glider training in the United States was a completely new science. Consequently, absolutely no texts, either for instructors or students, were available to supplement the bare outlines of the programs of instruction issued by the Flying Training Command. The responsibility for providing texts, therefore, devolved upon the directors of training at the individual schools. Throughout the period June, July, August of 1942 writer manuals began to appear at the schools. No coordinated text, however, was ever published until five Technical Manuals appeared in 1943.

Administration of Training. While the first half of the new training objectives was being reached, further entrance of trainees into Preliminary Schools was to be restricted. All preliminary graduates who could not be accommodated at the Elementary-Advanced School, were to be held at the Preliminary Schools for further dead stick landing practice. The Elementary-Advanced Glider Schools were to be kept in operation at maximum capacity until September 7, 1942.

On September 14, 1942, a new glider training program of sixteen weeks of instruction in four separate stages was scheduled to go into effect. Each phase was now to be four weeks long and given at a separate school. It was to consist of a beginner's course of 30 hours in power flying for Class B students at Preliminary Schools, a 30-hour course in dead stick landings for Class A students and graduates of the Preliminary Schools at Elementary Glider Schools, a 30-hour course in training gliders at the Basic Glider Schools, and at Advanced Glider Schools, a 40-hour course of instruction in cargo gliders.<sup>6</sup>

This new program would require 8 Preliminary Schools, all new, 8 Elementary Schools, 8 Basic Schools, an increase of 4 over the existing number, and 5 Advanced Schools.<sup>7</sup> It was contemplated that during August the Troop Carrier Command would assign to the Flying Training Command three of its stations complete with personnel, cargo gliders, tow planes, tow plane pilots, and crews. The 1,600 graduates of the elementary-advanced course would be transferred to the Troop Carrier Command and given as much advanced training as possible by September 20. On that date the instructors, who would have been previously trained at a special instructors' school at Lockbourne, Ohio, would return to the Flying Training Command to initiate the new advanced training program. This completely revised training program was scheduled to begin August 24 in the Elementary Schools, September 14 in the Basic Schools, and October 5 in the Advanced Schools. Training was also scheduled at this time to begin October 12 in the Preliminary Schools; however, negotiations were being carried on with the Civil Aeronautics Administration with a view to that agency's giving this type of training.<sup>8</sup> These negotiations were completed July 25, the Civil Aeronautics Administration agreeing to supply 3,000 Class B preliminary graduates by September 15, 1942.<sup>9</sup>

4. Daily Dir., AAFBTC, Aug. 19, 1942

5. Ibid., Aug. 16, 1942

6. AG, AAFBTC to CG's, TC's, Aug. 7, 1942, in AAFBTC Files.

7. Project Book of the CG, AAFBTC.

8. AG, AAFBTC to CG's, TC's, Aug. 7, 1942, in AAFBTC Files.

9. Memo for the Assistant Secretary of War by C/AS, Oct. 13, 1942, in AAG 353.9 B, Training--C.A.A.

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SECURITY INFORMATION

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35

As soon as the gliders have been delivered to Lockbourne and a sufficient number of instructors have been qualified to insure continuation of the instructors school, the glider pilots from the Materiel Command will be returned to Wright Field.

- b. The Troop Carrier Command be required to furnish C-47 type transport airplanes, with proper towing attachments and competent crews for
  - (1) The ferrying of 15-place gliders from the factory to the instructor's school at Lockbourne.
  - (2) For the conduct of the instructors school at Lockbourne.
  - (3) The ferrying of additional gliders from the factory to other advanced glider schools.
  - (4) For towing gliders at advanced schools.
  - (5) It is further recommended, in the event that it has not already been done that the Troop Carrier Command send at least 10 crews to the Materiel Center for instruction in glider towing operations. It is recommended that this be accomplished as early as practicable and in any event in sufficient time to insure an adequate number of towing crews being available by August 10th.
- c. The Director of Base Services be charged with providing necessary ballast (approximately 600 lbs. per 15-place glider) at the factory at Wichita, at a rate comparable to the delivery rate of the gliders . . . 13

This plan was immediately concurred in by the Director of Ground-Air Support and the Director of War Organization and Movement, provided that the Troop Carrier Command's commitment would not exceed one group.<sup>14</sup> The concurrences of the Troop Carrier and Materiel Commands were also secured, and arrangements were made with the Commanding Officer of the Troop Carrier Command for the instruction of tow plane crews in glider towing operations.<sup>15</sup> On August 1 the Chief of the Air Staff approved the plan and instructed the Director of Individual Training to issue the necessary directives to implement the program.<sup>16</sup> Accordingly, on August 7, 1942, a formal directive was issued to the Flying Training Command requesting that immediate action be taken to put the advanced glider training program into effect.<sup>17</sup>

Fifteen-Place Glider Production. At the time this plan was promulgated, it was estimated that the first deliveries of the CG-4A glider, the fifteen-place glider, from the Cessna plant would occur August 10.<sup>18</sup> The delivery date was soon revised to the twelfth or fifteenth,<sup>19</sup> and a few days later the Materiel Command advised that the gliders would be delivered August 21, delay being caused by difficulty in securing certain raw materials.<sup>20</sup> Actual delivery of the first CG-4A glider came on September 1, 1942.<sup>21</sup>

13. R&R, AFRIT to C/AS through AFRGS, AFROM AFAMC, and Troop Carrier Command, July 24, 1942, in AAG 353.2 C, Glider Training. (Troop Carrier Command hereinafter cited as AFTCC)
14. R&R No. 2, AFRGS to AFROM, July 24, 1942, and No. 3, AFROM to AFTCC, July 26, 1942, in ibid.
15. R&R No. 4, AFRGS to AFAMC, July 27, 1942, and No. 5, AFAMC to C/AS, July 29, 1942, in ibid.
16. R&R No. 6, C/AS to AFRIT, Aug. 1, 1942, in ibid.
17. AFRIT to CG, AAFFTC, Aug. 7, 1942, in ibid.
18. Ibid.
19. AFRIT to CG, AAFFTC, Aug. 4, 1942, in ibid.
20. Daily Diary, AARIF, Aug. 14, 1942.
21. Ibid., Sept. 1, 1942.

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37

This request illustrates one of the fallacies upon which the glider training objective was founded. When the program was planned and the tables of organization established, it was believed that large transport airplanes would be capable of towing three fully equipped and manned cargo gliders at the same time. During June, 1942, the Experimental Engineering Section at Wright Field conducted flight tests with a C-47 towing two fifteen-place gliders. It was found that "the estimated take-off run was 4000 feet. The estimated distance to clear a fifty foot obstacle was 6000 feet. Climb was very slow, the maximum altitude attainable was 3500 feet above sea level. During a period of this tow, engine temperatures exceeded those permitted." Although action was immediately taken to improve the cooling of the C-47 engine, the Materiel Command believed that towing three fully loaded CG-4A gliders would be impossible and that towing of two seemed questionable from a tactical standpoint.<sup>30</sup>

The Flying Training Command's request for tow planes had been referred to the Air Transport Command,<sup>31</sup> but that Command replied that "the tactical commitments of the Command, under the specific directives from General Arnold, have been so integrated with the available and expected aircraft of both C-47 and C-53 types as to make it impossible to provide the towing aircraft."<sup>32</sup> The Flying Training Command replied that if the required aircraft were not furnished, it would be impossible to give glider pilots transition training and thereby complete their training.<sup>33</sup> In an effort to alleviate the situation, the Director of War Organization and Movement requested information from the Materiel Command as to what other types of planes had been tested as prospective glider tugs.<sup>34</sup> At this time, mid-June, only the B-23 and the C-47 had been tested, but it was expected that tests on the AT-10 and the AT-11 would be completed by the end of July.<sup>35</sup> By June 24 the prospect for tow planes had not changed. The Flying Training Command was informed by the Director of War Organization and Movement that

All C-47 airplanes are now being assigned to a high priority project. There are only 24 B-23 airplanes and the present uses of them, mainly towing targets, proving ground tests, and transportation for the staffs of Air Forces makes it inadvisable to reassign them for glider training. As soon as the suitability of available types of airplanes for towing nine-place and fifteen-place gliders has been determined, this Headquarters will take the necessary action to provide them.<sup>36</sup>

As the Flying Training Command obviously could not conduct advanced glider training without the necessary tow planes, a conference was called in Washington the week of July 12 to 19 to work out a feasible solution. It was participated in by the Commanding Officer of the Troop Carrier Command, the Director of Ground-Air Support, and the Director of Individual Training. The conference decided that one Troop Carrier group, the 61st, would "be delayed in its movement program in order to provide aircraft and pilots for the towing of large gliders for the purpose of training glider pilots and transport pilots in such work." This group was to be available prior to July 25, 1942, but the increased delay in the delivery of fifteen-place gliders made it unnecessary for the Troop Carrier Command to furnish the planes at this time.<sup>37</sup>

30. Inter-office Memo, Materiel Division for CG, AFAMC by Chief, Experimental Engineering Section, June, 1942, in AAG 452.1 B, Gliders.
31. On June 20, 1942, the Air Transport Command was renamed the Troop Carrier Command and the Ferrying Command became the Air Transport Command.
32. CS, Air Transport Command to AAFFTC, June 6, 1942, in AAG 452.1 A, Gliders.
33. 1st Indorsement (CS, Air Transport Command to AAFFTC, June 6, 1942), AAFFTC to AFROM, June 15, 1942, in *ibid.*
34. 2nd Indorsement (CS, Air Transport Command to AAFFTC, June 6, 1942), AFROM to CG, AFAMC, June 18, 1942, in *ibid.*
35. 3rd Indorsement (CS, Air Transport Command to AAFFTC, June 6, 1942), AFAMC to AFROM, June 21, 1942, in *ibid.*
36. 4th Indorsement (CS, Air Transport Command to AAFFTC, June 6, 1942), AFROM to CG, AAFFTC, June 24, 1942, in *ibid.*
37. CS, AFTCC to CG, AAF, July 21, 1942, in *ibid.*

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Chapter VI

THE AUGUST 10, 1942, REVISION OF THE  
GLIDER PILOT TRAINING OBJECTIVE

Sudden Revision of Objective. As a result of figures compiled by the recently established Office of Program Planning and Control, another upward revision of the glider pilot training objective occurred August 10, 1942. This unexpected new directive called for the training of 7,800 glider pilots by March 1, 1943, instead of the 6,000 that would have been produced by that date under the revision of July 18. Glider pilot training was to be stabilized at the rate of 12,000 graduates a year thereafter.

The Flying Training Command immediately proceeded to effectuate this new program. It could only be accomplished by the fabulous graduation rate of 700 pilots every two weeks until February 17, 1943, an annual rate of approximately eighteen thousand. Thereafter, the annual rate was to be reduced to 12,000, 462 trainees graduating every two weeks.<sup>1</sup> The training centers were instructed to enter every two weeks, beginning August 28, a total of 869 students for the elementary course, 816 students for the basic course, and 776 students for the advanced course.<sup>2</sup>

As the Civil Aeronautics Administration would not be able to meet the requirements of the new directive immediately with graduates of its elementary flying course, the Southeast Training Center conducted four classes beginning August 31 of 665 students each at its seven Preliminary Light Airplane Gliding Schools.<sup>3</sup> On September 2 the Director of Individual Training requested the Civil Aeronautics Administration to enter students in its preliminary course in sufficient numbers to supply 540 graduates for elementary training every two weeks after December 4, 1942,<sup>4</sup> for a grand total of 16,440 glider trainees.<sup>5</sup> After the necessary flow from the C.A.A. schools had been established, the Preliminary Schools in the Southeast Training Center were to be closed.<sup>6</sup>

The course of instruction was established at 12 weeks, 100 hours for Class A students, and 16 weeks, 130 hours for Class B students. Class B students received thirty hours at Preliminary Schools. Both Class A and Class B students were to be given thirty hours in dead stick landings at Elementary Schools and thirty hours in basic training gliders at the Basic Schools. At this time it was planned that the advanced course would consist of forty hours on cargo gliders. In the interim before the new training program was to go into effect, training continued under the former plan.

Establishment of Schools. Aside from the 7 Preliminary Schools in operation, there were 8 Elementary Schools and 9 Basic Schools. Three of these Basic Schools<sup>7</sup> were scheduled to close about October 1, but arrangements were made to open four others. As advanced training was scheduled to begin on a permanent basis on October 1, the Flying Training Command estimated that seven stations for this type of training had to be in operation by that date. In the West Coast Training Center they included Fort Sumner, New Mexico, and a new site yet to be designated. In the Gulf Coast Training Center, Dalhart, Texas, and two more new stations were necessary, while in the Southeast Training Center, Walnut Ridge, Arkansas, and Stuttgart, Arkansas (Lockbourne, Ohio, being transferred there about the first of October), would have to be in operation.<sup>8</sup>

1. AFRIT to CG,AAFFTC, Aug. 10, 1942, in AAG 353.9 A, Glider Training.
2. Daily Diary, AAFFTC, Aug. 17, 1942.
3. Memo for A-4,AAFFTC, by Col. W. R. Carter, Aug. 15, 1942, in AAFFTC Files.
4. Daily Diary, AFRIT, Sept. 2, 1942.
5. Memor for Assistant Secretary of War by C/AS, Oct. 13, 1942, in AAG 353.9 B, Training--C.A.A.
6. AG,AAFFTC to CG,GCAFTC, Aug. 20, 1942, in AAFFTC Files.
7. Project Book of the CG,AAFFTC.
8. AG,AAFFTC to CG,AAF, Aug. 31, 1942, in AAG 353.9 A, Glider Training.

39

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C4-2555,AF

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41

ance with the ability of the individual student. Night flying was to be concentrated in the last third of the program with emphasis on landings from 500, 800, and 1,000 feet. After the first hour of dual, all landings were to be made with the ignition turned off.<sup>16</sup>

Basic Program of Instruction. The new thirty-hour, four-week basic course was similar in many ways to the first half of the old elementary-advanced course. Its objective and scope were defined in the same manner, except, as in the new preliminary course, military and physical training were added. The general flight plan was as follows:

	Dual 2	Solo	Total 2
Familiarization			
Precision landings, basic maneuvers, and precision flying.	5	8	13
Soaring (Weather and equipment permitting, otherwise distribute time as needed).	1	1	2
Instrument time under the hood in free flight.	1		1
Night Flying.	2	4	6
Navigation flights and strange field landings. 'Cut-off point' to be maximum distance from landing field.	2	4	6
Total	13	17	30

The ratio of dual to solo time depended on the progress of the individual students. Students were also required to have a minimum of three passenger hours in the tow ship, and ten hours of Link trainer instruction.<sup>17</sup> The Director of Base Services had been requested to provide the Basic and Advanced Schools with Link trainers at a minimum ratio of three for each 100 students.<sup>18</sup>

Ground Program of Instruction. A new ground training program was established, coordinated between the three stages given at the Air Force schools. In elementary 117 hours were to be devoted to ground training, 24 to military, 55 to ground training, 11 to medical training, 24 to physical, and 3 to line maintenance. The fifty-five hours of ground training included weather, chemical warfare, and code and blinker communications. The military program included instruction in close order drill, ceremonies, inspections, military courtesies and customs of the Service, War Department publications, and safeguarding military information.

The basic ground school prescribed 106 hours of training to be distributed among 24 of military, 46 of ground, 9 of medical, 24 of physical, and 3 of line maintenance. In the ground phase, meteorology, map reading and navigation, glider characteristics, code and blinker communications, and instruments were included. The military program included close order drill, ceremonies, inspections, military courtesies and customs of the Service, interior guard duty, and military correspondence.<sup>19</sup>

16. Directed Program of Elementary Glider Training, Jan. 15, 1943, in AAFFTC Files.

17. Directed Program of Instruction for Basic Glider Training, Jan. 15, 1943, in AAFFTC Files.

18. Daily Diary, AFRIT, Aug. 14, 1942.

19. Directed Program of Instruction in Ground Training in Elementary-Basic-Advanced Glider School, Jan. 15, 1943, in AAFFTC Files.

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C4-2555,AF



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43

and . . . qualified to service gliders in the field." The scope of the course was defined as "qualifications in the art of glider flying to include airplane tow, with particular emphasis on spot landing proficiency, and night flying. Qualification in the assembling, loading, and general maintenance of gliders and the towing gear."

The flight school instruction was established as follows:

	Dual 1/2	Solo
Familiarization flight		
Tow technique, take-off, climb, climbing turns; straight and level tows, recovery from bad tow position, to include prop wash.	1	1
Coordination exercises.	1/2	1/2
Stalls, partial and complete with immediate recovery, from straight glides and gliding turns.	1	1
Precision flying, stress constant air speed.	1	1
Landings, including use of brakes and nose skid for short roll.	1	1
Accuracy landings, 180° stage.		1
Descent on tow from 3000 feet to 180° side position.	1/2	1/2
Night flying.	1	2
Final check.		1/2

It was specified that the last five hours of day and the last hour at night should be flown with gross load.<sup>25</sup>

The twenty-five-hour ground school course prescribed subjects that heretofore had not been taught. Technical Manuals and Field Manuals were designated as texts. Ten hours were to be devoted to maintenance of gliders and tow equipment. The students were to do servicing and minor repairs, as it was contemplated that they would have to perform this function in the field. The program prescribed five hours for tactical maps and aerial photographs. To aircraft identification six hours were allotted, and two to camouflage.<sup>26</sup> During the early experimentation with the cargo glider, it had been decided that in combat operations some of the craft in the glider echelon would transport a jeep and six men. Consequently, in May, 1942, the Flying Training Command had been instructed to include instruction "in operation, servicing, and minor maintenance of the jeep including the most efficient method of loading, storing, and unloading jeeps from 15-place gliders."<sup>27</sup> Mock-ups of the fifteen-place glider were provided to facilitate the two hours' instruction to be devoted to this type of training.<sup>28</sup>

25. Program of Instruction for Advanced Glider Schools, Sept. 21, 1942, in AC/AS, Training Files.

26. *Ibid.*

27. Daily Diary, AFRIT, May 18, 1942.

28. R&R, AFAMC to AFRIT, July 23, 1942, in AAG 452.1 B, Gliders.

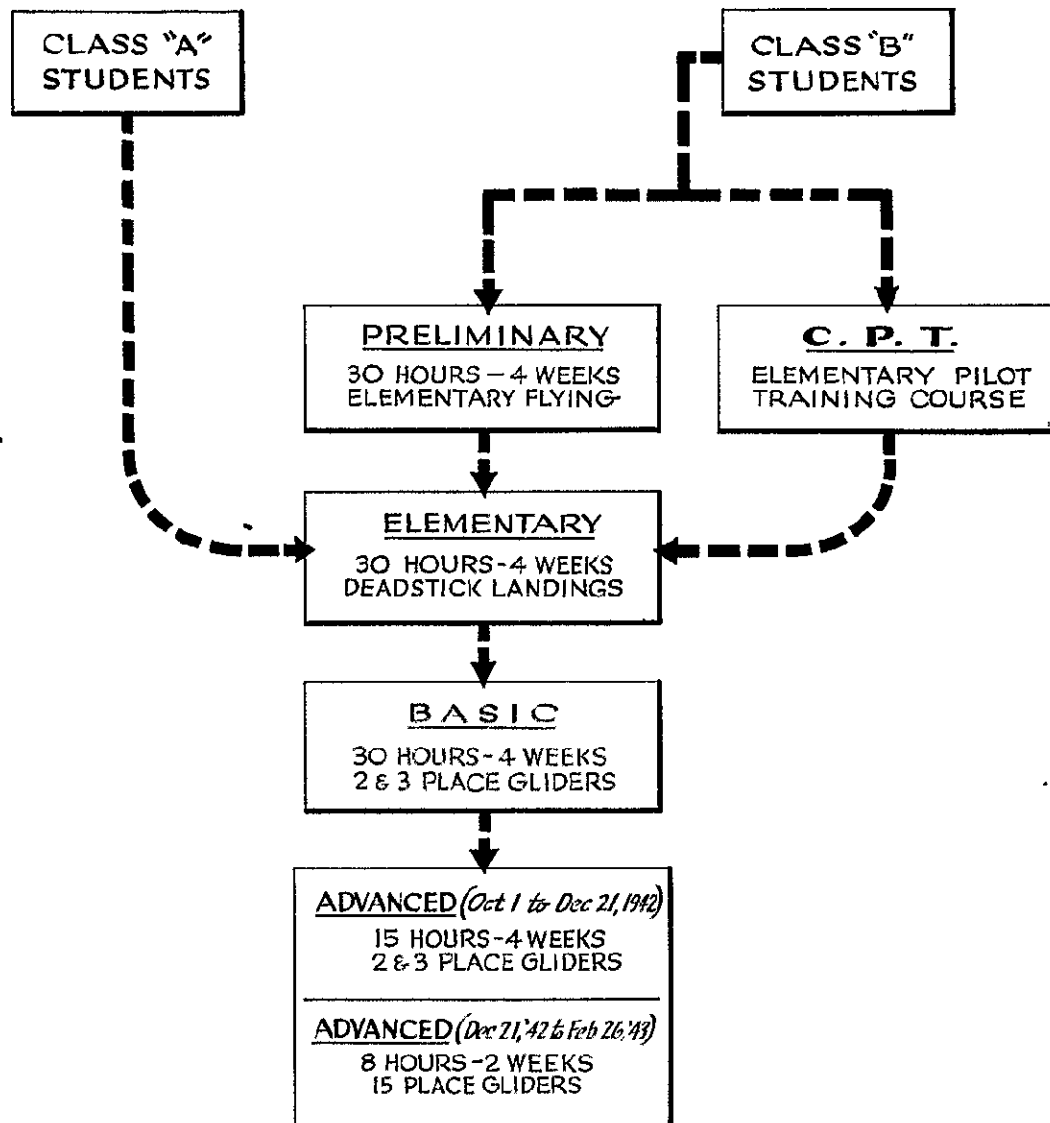
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# FLOW OF STUDENTS THROUGH GLIDER SCHOOLS

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## Chapter VII

THE SEPTEMBER 30, 1942, REVISION OF THE  
GLIDER PILOT TRAINING OBJECTIVE

Revision of Objective. While the Flying Training Command was endeavoring to effect the directive of August 10, Headquarters initiated the inevitable and greatly needed study to rectify the glider program. It was realized that the program was completely out of phase and that glider pilot production was far in excess of existing and contemplated tactical needs. The acute shortage of tow planes and the serious morale problem developing in the glider pools demanded an immediate and effective remedy.

On September 25, therefore, A-3 forwarded a memorandum to the Chief of the Air Staff which advocated a radical revision of the glider pilot training program. Recently, considerable discussion had occurred in Headquarters regarding the disposition of available Troop Carrier groups. This memorandum recommended that one group be permanently attached to the Flying Training Command for advanced glider pilot training immediately, and another group by November 1. A reduction of about 50 per cent in the glider pilot training objective was also recommended. Under the preceding directive, 7,800 pilots were to be produced by March 1, 1943. This number was now to be reduced to 4,000 by that date, and thereafter training was to continue at the rate of 400 a month to provide a total of 8,000 by December 31, 1943.<sup>1</sup>

Effectuation of New Objective. The memorandum was approved by the Chief of the Air Staff, and on September 30, 1942, the Director of Individual Training instructed the Flying Training Command to conduct the glider program accordingly.<sup>2</sup> The training centers were immediately directed to effect the new program.

All Preliminary Schools in the Southeast Training Center were to be closed as previously planned. This marked the discontinuation of training of Class B glider students.<sup>3</sup> In accordance with this decision and due to the fact that personnel necessary for the revised program were already on procurement, the Director of Individual Training advised the Civil Aeronautics Administration on October 6 that Class B procurement was to stop. It was requested that only two more classes of 540 elementary trainees each be supplied, December 4 and 18.<sup>4</sup> The Elementary Schools were to continue in operation at the rate of 816 students a class until all preliminary graduates including Civilian Pilot Trainees had been trained. Then, all Elementary Schools were to be closed.

The civil contract Basic Schools, two in each training center, were to continue at maximum capacity until all elementary graduates had been given basic training. The Army Basic School at Fort Sumner, New Mexico, and the recently activated Basic School at Starkville, Mississippi, were to be closed at the discretion of the West Coast and Southeast Training Centers. When all students now in the glider program had received basic training, which was expected to be around June, 1943, the basic course was to be increased to two months and was to be given at the six civil contract schools. Separate Elementary Schools were no longer to be employed. The training course would consist of one month of dead stick landings in light airplanes and one month in training gliders. The Advanced Schools were to continue operating at maximum capacity until all basic graduates had received training.<sup>5</sup>

Accumulation of Students in Pools. But the downward revision of the total objective, except by somewhat alleviating the materiel shortage, did not by any means solve the serious problems facing the Flying Training Command. The authorized decrease in student production rate, in fact, tended to aggravate the rapid accumulation of trainees in pools and prolong their prospective training period.

1. Memo for C/AS by A-3, Sept. 25, 1942, in AAG 353.9 3A, Glider Training.
2. AFRIT to CG,AAFFTC, Sept. 30, 1942, in *ibid.*
3. CG,AAFFTC to CG's, TC's, Oct. 12, 1942, in AAG 360.01 B, Programs.
4. Daily Diary, AFRIT, Oct. 6, 1942.
5. CG,AAFFTC to CG's, TC's, Oct. 12, 1942, in AAG 360.01 B, Programs.

45

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C4-2555,AF

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47

The Director of Individual Training concurred and requested A-3 to advance the date of arrival of the allotted second Troop Carrier group as soon as possible, especially in view of the fact that one squadron of the Troop Carrier group then attached to the Command was being removed for participation in the October airborne maneuvers in Texas.<sup>14</sup> A-3 replied that the requirements for these maneuvers precluded the assignment of the additional group prior to November.<sup>15</sup>

The second Troop Carrier group, the 63rd, did not arrive until the middle of November, some time after the scheduled date. The delay was caused by a sharp decline in factory production and the fact that many Troop Carrier aircraft had been shipped overseas unexpectedly for participation in combat operations.<sup>16</sup>

Again on November 13, 1942, the Director of Individual Training requested the Director of War Organization and Movement through the Director of Air Support to make the necessary tow planes and gliders available to the Flying Training Command. By this time the Command had found that under the objective of September 30, a continuous total of 114 CG-4A gliders, plus 3 per cent a month attrition, and an equal number of tow planes of C-47 or C-60 type were required. After May 1, 1943, it was estimated that the requirements would decrease to 103 gliders and an equal number of tow planes. By early November only ninety gliders had been allocated to the Flying Training Command, and as it was desired to open a fourth Advanced School at Victorville, California, as soon as possible, immediate allocation of an additional twenty-four CG-4A gliders was requested. Although the requisite tow squadrons had at last been assigned to the Flying Training Command, they were without their full complement of planes. Some of the squadrons had only nine planes instead of thirteen, and one squadron was without any planes at all.<sup>17</sup>

Coordination by the Director of Air Support was slow. On November 24 that office requested the Director of War Organization and Movement to assign the required twenty-four gliders, but added that the tow planes could not be allocated, for production of C-47 airplanes was not even sufficient to meet other commitments. Headquarters, however, cognizant of the acute tow plane needs of the Flying Training Command, had arranged for the allocation of fifty-two C-60 airplanes, plus 4 per cent attrition, the entire production through January, 1943, and thereafter allocation of 4 per cent attrition and an eight-plane maintenance reserve. It was hoped that at a later date additional C-60 aircraft might be allotted; however, Air Support was contemplating withdrawing one Troop Carrier squadron for every thirteen C-60's delivered for advanced training.<sup>18</sup>

On November 26 thirteen CG-4A gliders were made available by the Director of War Organization and Movement with the promise of eleven more as soon as they became ready for delivery.<sup>19</sup>

Obviously, the Flying Training Command could not meet the glider training objective with the number of tow planes on hand. Consequently, on November 24 it submitted a revised flow chart showing the amount of training that might be reasonably expected with the Troop Carrier airplanes then attached to the Command. It was requested that this new estimate be made the basis for further revision of the glider pilot training program if additional tow planes could not be assigned.<sup>20</sup> Once again, the necessity of integrating available materiel and pilot production indicated the need for further reduction of the glider pilot objective.

14. R&R No. 3, AFRIT to AFACT, Oct. 11, 1942, in AAG 353.9 C, Glider Training.

15. R&R No. 4, AFACT to AFRIT, Oct. 12, 1942, in *ibid.*

16. CG, AFTCC to CG, AAF, Nov. 3, 1942, to AAF, AFTCC Files.

17. R&R, AFRIT to AFROM through Director of Air Support, Nov. 13, 1942, in AAG 452.1, Gliders. (Director of Air Support hereinafter cited as AFRAS).

18. R&R No. 2, AFRAS to AFROM, Nov. 24, 1942, in *ibid.*

19. R&R No. 3, AFROM to AFRIT, Nov. 26, 1942, in *ibid.*

20. CG, AAF, Nov. 24, 1942, in AAG 353 A, Glider Training.

SECRET

C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

## Chapter VIII

THE DECEMBER 1, 1942, REVISION OF THE  
GLIDER PILOT TRAINING OBJECTIVE

Objective Halved. The responsible agencies in Headquarters were at last becoming cognizant of the difficulties attendant to the accomplishment of the glider program. The Flying Training Command's recommendations of November 24 were promptly translated into action, for on December 1, 1942, the Command was informed that the glider pilot objective had been substantially reduced. The graduation rate was now to be brought into conformity with the fifteen-place gliders and tow planes available in the Flying Training Command. Specifically, glider pilots were to be produced at the rate of 300 every two weeks for a grand total of 8,335. This would provide 2,035 by March 1, 1943, approximately one-half of the number required by the directive of September 30, 1942.<sup>1</sup>

With this new objective, consonance was at last achieved, in theory if not in fact, between available materiel and student production quotas. Each Advanced School was to graduate seventy-five students every two weeks. When tow plans were diverted for ferrying purposes, a reduction of four graduates for each airplane was authorized.<sup>2</sup>

Revision of Advanced Training. Suddenly, on December 21, 1942, the Flying Training Command was instructed by Headquarters to reduce the advanced training program from fifteen to eight hours.<sup>3</sup> It would appear that this directive was arbitrarily promulgated without proper consultation of those men fully grounded in the needs and methods of glider training. Examination of the program of instruction published January 15, 1943 as a guide for the new course reveals that the time provided for flying training was entirely inadequate.

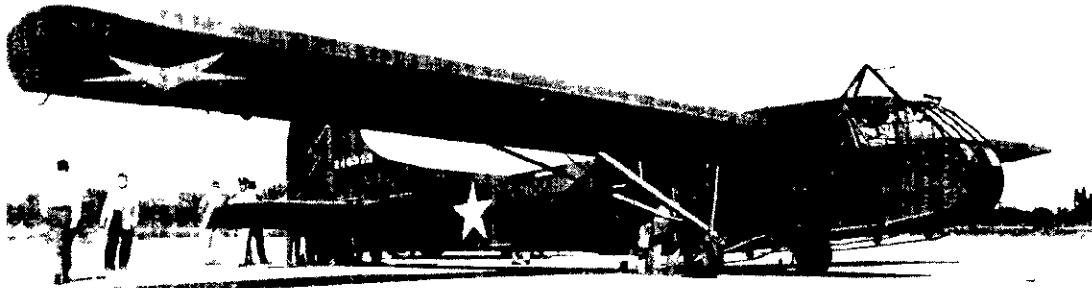
The duration of the new advanced training course was established at four weeks of ground school and two or four weeks of flight training at the discretion of the director of training. Six hours were to be devoted to day transition, three dual and three solo, and two hours to night flying, one dual and one solo. This accounted for the total eight hours of prescribed pilot time. To supplement this curtailed instruction, seven additional hours of co-pilot and passenger time were also allotted. "The ratio of dual to solo hours was purposely left low," and "except in unusual circumstances," it was prescribed that "students requiring more than four hours dual should be eliminated." Due to the reduction in flight time, all students were to be given a three-day course on all phases of heavy glider flying prior to their first day of actual flying.<sup>4</sup>

It was felt throughout the entire Flying Training Command that a candidate could not learn to fly a CG-4A glider efficiently in eight hours. Advanced schools were forced to graduate men who were not fully qualified glider pilots, and during the two months that this directive was in effect, dissatisfaction and disillusionment were rife among the instructor personnel.

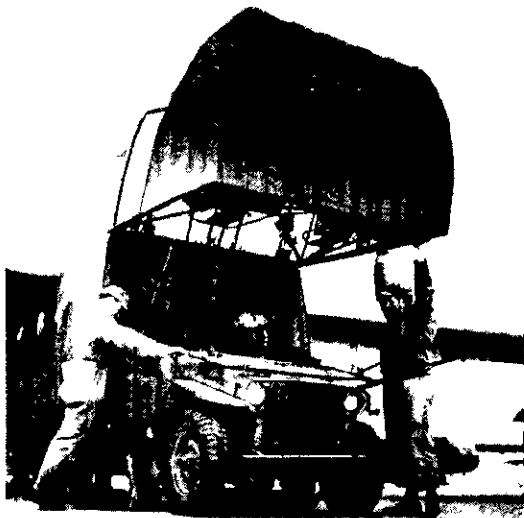
The reduction in the advanced glider course and the necessity for redistributing the two Troop Carrier groups conducting towing operations required a change in glider production quotas. The Gulf Coast and Southeast Training Centers were instructed to produce 100 graduates every two weeks beginning December 24 at each of their three schools, while Victorville in the West Coast Training Center was charged with the graduation of 300 students every two weeks.<sup>5</sup>

Tow Plane Requirements. The tow plane problem was still not solved. By December, however, 129 C-60A aircraft had been allocated to the Flying Training Command, 79 as tow ships and 50 as navigational trainers. By the fifth of December twenty-

1. Daily Diary, AFRIT, Dec. 1, 1942.
2. AG,AAFFTC to CG's, TC's, Dec. 8, 1942, in AAFFTC Files.
3. Daily Diary, AFRIT, Dec. 21, 1942.
4. FTC Memorandum, No. 50-1-1, Feb. 1, 1943.
5. TE6G, CG,AAFFTC to CG's, TC's, Dec. 17, 1942, in AAFFTC Files.



CG-4A combat glider. Glider carries thirteen fully equipped troops, glider pilot, and copilot.



Combat glider can also carry jeep and six men. In transit four men sit in the jeep.



Tactical take-off gear is jettisoned after leaving the ground. Landing is accomplished on wooden skids.

The CG-4A glider has a wing span of 83 feet and an over-all length of 48 feet. Its gross weight is 6,800 pounds, and it carries a useful load of 3,711 pounds. Its maximum indicated air speed is 120 miles an hour. The nose containing the pilot's compartment lifts on hinges to allow the glider to be loaded with a jeep, 37 mm anti-tank gun, 75 mm pack howitzer, or a quarter ton trailer.

RESTRICTED  
SECURITY INFORMATION

SECRET

51

tive to gliders.<sup>12</sup> The institution of technical orders and an inspection system for gliders had also been directed.<sup>13</sup> Finally, on December 26 the Materiel Command and the Air Service Command placed first priority on the maintenance of the CG-4A glider.<sup>14</sup>

In spite of the priority on maintenance, throughout January, February, and March at least 50 per cent of the gliders remained grounded. In December the Director of Individual Training had advised the Flying Training Command to request the Air Service Command to make mobile air depots available in order to expedite the necessary repairs. These mobile repair depots were requested, but this project was not deemed feasible by the Air Service Command.<sup>15</sup>

Frequent failure of the front landing gear fittings, the towline release mechanism, and the nose-raising locking device on the CG-4A glider caused the Director of Air Support to refer the problem to the Materiel Command for immediate remedy. The Materiel Division reported that no failure of the front landing gear had been encountered at Wright Field, and stated that

It is believed that the failures encountered in service are entirely due to errors in landing technique on the part of the pilots. CG-4A gliders should not be landed in the three point attitude or should they be dropped in. Proper procedure consists of flying the glider onto the ground. It is also believed the use of training gliders as the TG-5 which requires a landing resembling an airplane landing rather than a glider landing is conducive in training pilots in improper technique. . . .

The Command expressed the opinion that the failures in the tow release mechanism was due to improper maintenance. "An indicator is provided to insure that the tow release mechanism is completely closed. During a tour of inspection many tow planes were found in which this indicator was inoperative due to having collected dirt and from lack of lubricant."<sup>16</sup> The same decision was reached in regard to the nose-raising locking device; failure was due to faulty maintenance, not faulty design.<sup>17</sup>

The maintenance problem of the CG-4A glider yet remains to be solved. As late as May, 1943, as many as 75 per cent of the gliders were grounded at one time.<sup>18</sup> But by this time the problem was actually not so acute, because the reduced training load and quantity production of cargo gliders relieved the situation. Perhaps the maintenance difficulty can be explained in part by the fact that the CG-4A glider, although placed in quantity production, was still an experimental machine. In October, 1942, it was decided not to attempt any further development or refinement of the CG-4A other than normal production improvements. The reason for this decision lay in the fact that production schedules precluded "the obvious delay occasioned by any major design changes."<sup>19</sup> Moreover, the cargo glider was built with the specific mission of accomplishing one transport flight, not to be used as a training ship for approximately four hundred hours.

Although the maintenance problem of the cargo glider still remains extremely acute, one recent development promises to alleviate the situation to some extent in field operations. The Technical Training Command Glider Mechanic School at Sheppard Field, Texas, has de-

12. Maintenance Division, AFASC to Aircraft Section, AFASC, Jan. 11, 1943, in ibid.

13. AFASC to Director of Technical Inspection, Sept. 1, 1942, in ibid.

14. Daily Diary, AFRIT, Dec. 26, 1942.

15. R&R, AC/AS, Training to AC/AS, Materiel, Maintenance and Distribution, March 29, 1943, in AAG 452.1, Gliders. (AC/AS, Materiel, Maintenance and Distribution hereinafter cited as AC/AS, MM&D).

16. Memo for CG, AFAMC by Chief, Engineering Division, Materiel Division, Jan. 25, 1943, in ibid.

17. Memo for AC/AS, MM&D by Technical Executive, AFAMC, April 19, 1943, in ibid.

18. R&R, AC/AS, Training to Special Assistant for the Glider Program, May 7, 1943, in AAG 353, Glider Training. (Special Assistant for the Glider Program hereinafter cited as AFSAG).

19. CG, AFAMC to J. J. Cochran, Oct. 8, 1943, in AAG 452.1 C, Gliders.

SECRET

C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

53

Command directed the training centers to discontinue enrollment of trainees who were procured from eliminated aviation cadets,<sup>28</sup> and also requested authority from Headquarters to allow qualified men awaiting training to apply for aviation cadet training.<sup>29</sup> This authority was granted November 6, 1942, provided that no students trained by the C.P.T. be permitted to apply.<sup>30</sup>

The efforts of the Flying Training Command, however, met with little success. Rumors were current among the students that no specific need for their services existed because the tactical employment of gliders had been found unsuccessful.<sup>31</sup> It appears that a superficial effort was made to disseminate information designed to lift the trainees' morale by glamorizing the role of the glider pilot. The fact that procurement of additional personnel had been suspended in November and that students awaiting advanced training had been permitted to attend Officer Candidate School or volunteer for duty as liaison pilots with the Field Artillery only served to substantiate these rumors.<sup>32</sup>

Loss of Flying Proficiency. The accumulation of glider trainees in pools raised still another problem. When the students finally progressed from a pool to another stage of training, it was found that they had lost a good portion of their flying proficiency. Consequently, and in order to improve morale, on January 4, 1943, the Flying Training Command was directed to give these students flying time in light aircraft.<sup>33</sup> The Command, in accordance with this directive, distributed the liaison planes not needed at the Elementary Schools to all the pools. It was estimated that the ratio of one plane to every ten students should provide a minimum of about four hours flying time a month.<sup>34</sup> This would indeed be an improvement over the existing situation. At the two elementary pools there had been an average of two hours and twenty minutes flying time a month at one pool and no flying at the other. There had been no flying at the 3 basic pools, and of the 4 advanced pools, one had given 3 hours and 51 minutes, another 2 hours and 45 minutes, another 6 hours, and another 10 hours.<sup>35</sup> Again the ever-present lack of coordination which characterized the glider program had produced a serious situation.

On February 4, 1943, an AAF Regulation authorized commanding officers of Army Air Forces activities to grant permission to glider pilots to pilot liaison type aircraft of 180 h.p. or less provided they:

1. Hold a currently effective military aeronautical rating of Glider Pilot, and
2. Have demonstrated by a check flight, to the satisfaction of the commanders concerned, their ability to operate safely and efficiently the aircraft involved.
3. Make no landings away from the home airport other than satellite or auxiliary fields of the home airport.

This regulation was designed to maintain the pilots' proficiency in motorless flight, not to give them training in piloting heavier-than-air craft.<sup>36</sup>

Attempts to Accelerate Advanced Training. The Flying Training Command was greatly concerned over the numbers of students in the pools and desired to utilize every possible means to speed up training. The rate of advanced training was limited by the fact that not more than four hours' towing a day for each airplane could be obtained by

28. Daily Diary, AAFFTC, Oct. 16, 1942.

29. AG,AAFFTC to CG,AAF, Oct. 25, 1942, in AAG 353, Glider Training.

30. 1st Indorsement (AG,AAFFTC to CG,AAF, Oct. 25, 1942), AFPMP to CG,AAFFTC, Nov. 6, 1942, in *ibid.*

31. R&R, AFRIT to AFRAS, Dec. 22, 1942, in AAG 211, Pilots.

32. TE6E 925-L, CG,AAFFTC to CG,AFGCTC and CG,AFWCTC, Dec. 16, 1942, in AAFFTC Files.

33. AFRIT to AAFFTC, Jan. 4, 1943, in AAG 353, Glider Training.

34. AAFFTC to AFRIT, Jan. 19, 1943, in *ibid.*

35. TWX, CG,AAFFTC to AFRIT, Jan. 14, 1943, in *ibid.*

36. AAF Reg. 60-19, Feb. 4, 1943.

C4-2555,AF



RESTRICTED

SECRET

55

small arms, marksmanship, hand grenades, hasty entrenchments, camouflage, map and aerial photography, demolitions, glider-borne tactics, guerrilla warfare, night operations, supply and resupply of troops, evacuation, and communications be instituted. The report also recommended that sufficient Infantry instructors be detailed to these schools, and that an officer from the Airborne Command be assigned to supervise this instruction.<sup>42</sup>

On December 27, 1942, Lieutenant Colonel Quinto's report was forwarded from the Army Ground Forces to the Air Forces with the following comment:

Facilities for ground training have been found to be inadequate at the glider schools at which pilots are awaiting advanced glider training. It would appear more desirable to undertake ground training at tactical glider stations in conjunction with airborne troops thereat. This avoids setting up an instructional group and obtains [obtaining] arms, equipment and overhead personnel, all of which are difficult to obtain.<sup>43</sup>

But this decision of the Army Ground Forces did not close the matter. The Airborne Command recommended that the Flying Training Command conduct the Infantry training of advanced glider students, but that Command advised that it would assume no responsibility for this type of training, although it would readily concur in a plan to order students from the pools to the stations of the Airborne Command provided such a program would not interfere with advanced training.<sup>44</sup> Negotiations were continued between the Director of Air Support and the Ground Forces, but apparently no final decision was ever reached.<sup>45</sup> On January 9, 1943, the Flying Training Command was instructed to continue the ground courses already established.<sup>46</sup>

Accordingly, on January 12 the Flying Training Command instructed the training centers to institute a revised program of instruction in the glider pools.<sup>47</sup> The program required at least 4 hours a month of flying in light airplanes, 1 hour a day of physical training, a minimum of 6 hours a week in Morse code and communications, Link trainer instruction, and first aid, 6 hours a week in any available small arms, and 6 hours a week servicing and maintenance work on light airplanes. It also suggested 2 hours a week of interior guard duty, 6 hours of elementary squad and platoon tactics, 2 hours of demolition and explosives, and "any additional training in keeping with whatever facilities are at the disposal of the Commanding Officer at the post where the pool is located."<sup>48</sup> Some of the courses prescribed in this curriculum were already being given, and it has been reported that actually little change took place in pool instruction, as the lack of equipment throughout the Command precluded any comprehensive combat training.

Plans for Consolidated Glider Pool. Meanwhile, the Command had been acting to establish a consolidated pool of all basically trained glider students. It had been hoped that by accumulating these 5,000 trainees in one pool a more coordinated program of ground instruction could be established, thereby better preparing the glider pilot for his future mission and incidentally raising the generally low state of morale. The Technical Training Command had agreed to make available its facilities at Lincoln, Nebraska, in January.<sup>49</sup> Arrangements were made for the transfer of students to this station after February 19;<sup>50</sup> however, due to a subsequent reduction in the program, the consolidated pool at Lincoln was never established.<sup>51</sup>

42. Lt. Col. M. A. Quinto to CG, Airborne Command, Dec. 17, 1942, in AAG 353.9, Bombardier Training.

43. 1st Indorsement (Lt. Col. Quinto to CG, Airborne Command, Dec. 17, 1942), Hq., AGF to CG, AAF, Dec. 27, 1942, in *ibid.*

44. Daily Diary, AFRIT, Jan. 7, 1943.

45. R&R, AFRAS to AFRIT, Jan. 9, 1943, in AAG 352.11, Glider Schools.

46. AFRIT to CG, AAF, Jan. 9, 1943, in AAF, AFTC Files.

47. AG, AAF, AFTC to CG, AAF, Jan. 12, 1943, in *ibid.*

48. Instruction to be given Air Forces Personnel in Glider Pools, Jan. 6, 1942, in *ibid.*

49. Daily Diary, AFRIT, Jan. 22, 1943.

50. Daily Diary, AAF, AFTC, Feb. 1, 1943.

51. *Ibid.*, Feb. 15, 1943.

SECRET

C4-2555, AF

SECRET

57

Summary. The period, December 1, 1942, to February 18, 1943, constituted a transitional phase in the glider pilot training program: a link between all former stages and the radical revision of almost every aspect of the program which occurred in February, 1943. In the two and one-half months, almost all the major trends that had been gathering momentum since the inception of the 6,000 Program reached the high point of their development. The combination of factors which created the tremendous accumulation of students in pools resulted in an extremely serious and almost insurmountable morale problem and a loss of flying proficiency on the part of the glider trainees. Throughout this period the Flying Training Command, while attempting to accelerate the rate of training by various measures, endeavored to find solution for these problems. The growing consciousness of the combat mission of the glider pilot coupled with a desire to give him sufficient occupation developed into a realization of the need for coordination of the glider training program between the Ground and Air Arms--a consideration that assumed greater importance and significance thereafter. The lack of adequate materiel, although still a serious factor, is somewhat eclipsed by these other problems. The materiel situation did assert itself, however, in the glider maintenance and structural failure difficulties experienced during this period. The link had been forged; revision had to come.

SECRET

C4-2555,AF

RESTRICTED  
INFORMATION

SECRET

59

General Borum stated, however, that if some method could be worked out for moving the Troop Carrier glider echelons and their equipment overseas, then "the problem simplifies itself to one of physically handling the surplus until they are required by this Command." The Troop Carrier Command, cognizant of the existing serious morale problem, stated that it believed that the most effective method of raising the glider pilots' morale was "to move them rapidly and efficiently through a training and shipment program, when they do become a part of tactical organizations. It is, therefore, recommended that they not be placed in this Command until such training and movement can be effected with reasonable velocity." General Borum, therefore, suggested that only enough glider personnel be assigned to his Command to fill the scheduled glider shipments. The surplus pilots should be maintained within the Flying Training Command in order that the Troop Carrier Command could "maintain its maximum effective potentialities in raising the morale of those fortunate enough to be assigned for overseas training and shipment."<sup>3</sup>

The Troop Carrier Command, having thus defined its attitude toward the execution of the glider program, suggested several methods by which the Flying Training Command might solve its problems. The advanced stage of training should be increased, thereby better qualifying the glider pilots for future instruction in tactical operations. The small pools of glider pilots should be accumulated in one or more large pools, and "every possible step taken to make available to them liaison and glider aircraft." While the trainees were in pools, they should be given an intensive ground course including Link trainer, navigation, communications, and other aeronautical subjects, coupled with comprehensive courses in the ground arms, and if time permitted, an elemental course in ground tactics. The Command also recommended that if an actual surplus of glider pilots did exist, immediate steps should be taken to allocate the surplus to other training, exclusive of these pilots needed as initial or replacement members of Troop Carrier glider echelons.<sup>4</sup>

Recommendations of A-3. Due to these new developments, on January 30 A-3 recommended to the Chief of the Air Staff that the glider pilot program be revised to a final total of 6,000 trained glider pilots and that their flow be regulated to conform with the ability of the Troop Carrier Command to utilize them. A-3 also recommended that the advanced stage be reinstated at fifteen hours' flying time. The excess personnel resulting from this reduction would be diverted to other types of training.<sup>5</sup>

Recommendations of the Flying Training Command. The Flying Training Command was still faced with tremendous problems in the administration of the glider pilot program. Although it had been informed that production was apparently in excess of contemplated need and that a lower rate was planned for 1944, the extremely low state of the glider trainees' morale necessitated that training be continued as rapidly as possible. There were certain concrete difficulties, however, that made it difficult to continue training at even the present rate. These were the loss of training stations, the transfer of Troop Carrier aircraft from the Command's jurisdiction, and the delay in delivery of the C-60 airplanes needed to replace the Troop Carrier aircraft. On January 29, therefore, the Flying Training Command recommended that if a reduction in training was to take place, the students in pools should be diverted to some other training as soon as possible.<sup>6</sup>

Pursuant to these new developments and recommendations, Headquarters realized the necessity for definite decisions to achieve a coordinated glider program. For almost two years the glider program had been proceeding without the benefit of coordinated planning. This lack of integration, partially caused by rapid expansion, had led to numerous problems which had to be solved by the agencies charged with the execution of the program.

Recommendations of Conference to Determine Glider Program. On February 5, 1943, a conference was convened in the A-3 Division, presided over by Colonel R. W. Harper, chief of that division, and attended by representatives of A-1, A-4, the Directorate of Air Support, the Directorate of Individual Training, the Materiel Command, the Troop Carrier Command, the Flying Training Command, and the Air Transport Command. The conference first considered the recommendations of the Operations Division, General

3. Ibid.

4. Ibid.

5. R&R No. 3, A-3 to C/AS, Jan. 26, 1943, in AAG 353 A, Glider Training.

6. AAFTC to CG,AAF, Jan. 29, 1943, in AAG 353, Glider Training.

SECRET

C4-2555,AF

SECRET

61

gram. They were:

1. That the present production estimate . . . scheduling the delivery of 6006 CG-4A gliders by December 31, 1943, is adequate to meet Army Air Forces glider requirements.
2. That the Air Service Command be directed to provide suitable storage facilities for these gliders in the event they are not immediately employed.
3. That the Materiel Command should expedite the development of a cargo glider to meet requirements of the Air Transport Command.
4. That the present 8000 glider pilot training program be reduced to a total of 4054 trained glider pilots by January 1, 1944. . . .
5. The flying time required to train a glider pilot in the advanced phase should be increased from eight to fifteen hours.
6. The Assistant Chief of Air Staff, A-1, through the Director of Military Personnel, should take the necessary action to absorb by other means the excess glider students now accumulated in the Flying Training Command.
7. That the Director of Air Support take the necessary action to have the Troop Carrier Command set up a school for glider pilot graduates that may be accumulated within the Command as a result of the shortage of shipping space. Instructions in the use of ground arms and ground tactics should be included in the curriculum. One hundred puddle jumpers will be allocated to the Troop Carrier Command in order that the glider pilots may maintain their flying proficiency.
8. That on July 1, 1943, a Board of Officers be appointed to review the glider program in the light of the situation as it then exists.<sup>9</sup>

Revision of the Glider Program. With the approval of these recommendations by the Chief of the Air Staff,<sup>10</sup> the policies and directed action for the achievement of a coordinated glider program were finally established. It now remained for the responsible agencies to place them in effect. On February 12, 1943, Headquarters took the necessary action to discontinue the calling of enlisted reservists to active duty for glider training. A-1 formally instructed the Director of Personnel to make no more requests to The Adjutant General to order enlisted reservists to active duty.<sup>11</sup>

On February 18, 1943, the Director of Individual Training transmitted the final revision of the glider pilot program to the Flying Training Command. The Command was directed to produce enough glider pilots to meet the total Troop Carrier Command requirement of 4,054 by December 31, 1943. As a number had already graduated, the 1943 quota was placed at 3,418. After March, production was not to exceed 250 graduates a month.

There were approximately ten thousand students in the various stages of training; therefore, this new directive presented the problem of disposing of about fifty-five hundred excess trainees. The Command was directed to divert students in the elementary or basic stages or from the glider pools. A sufficient number of advanced trainees were to be retained to permit an increased elimination rate, and thereby provide a substantial improvement in the quality of the product. Inasmuch as no requirement had been established for glider pilots for 1944, authority was granted to close all glider schools that could not be diverted to other training.

This directive also specified that "the Advanced course of flying will be re-established at 15 hours of first pilot training in addition to co-pilot time, stressing training phases which will qualify the graduate to meet the standards set up by the Troop Carrier Command." As soon as possible the Flying Training Command was to implement the program of instruction for pooled trainees formulated at the conference of February 8 and 9,

9. Board Report on Recommendations for Army Glider Program, Feb. 11, 1943, in AAG 452.1, Gliders.

10. Daily Diary, AFRT, Feb. 18, 1943.

11. R&R, AC/AS, A-1 to AFDOP, Feb. 12, 1943, in AAG 353, Glider Training.

SECRET

C4-2555,AF

SECRET

63

aviation cadets, eliminated aviation cadets, and aviation cadet candidates; enlisted reservists and civilians. As soon as the Flying Training Command had completed its personnel survey to determine the qualifications of the excess trainees, these students would be reassigned to other duties on a voluntary basis. It was felt, however, that a few individuals might refuse to volunteer for reassignment. In the case of those individuals who had entered glider pilot training from active duty with the Army, their removal and reassignment was justifiable. But there were some trainees who had entered the Service for the express purpose of pursuing glider pilot training, and in their case the Air Forces felt "morally obligated" to permit them to return to civilian status provided that reassignment to some other duty was not acceptable to them. Consequently, A-1 recommended that the Army Air Forces be authorized to:

1. Establish boards of officers to determine the qualifications of excess glider pilots and glider pilot trainees for reassignment or transfer to other duties in the Army.
2. Reassign or transfer excess glider pilots and glider pilot trainees to other duties in the Army for which they are qualified, including transfers to the Army Ground Forces or Services of Supply for officer candidate training or for reassignment to their former organizations.
3. Discharge from the Army such excess glider pilot trainees who enlisted in the Army for the sole purpose of undergoing glider pilot training, and for whom no suitable duties are available to which they might be reassigned or transferred.<sup>20</sup>

The recommendations of the Army Air Forces were approved by the General Staff on February 22, 1943. On February 25 A-1 formally charged "the Director of Personnel in coordination with the Director of Individual Training under directives and policies issued by A-1 Division" with the administration of the disposition of excess glider personnel;<sup>21</sup> informal notification had occurred three days earlier.<sup>22</sup>

Also on February 16, 1943, the Director of Individual Training requested the Flying Training Command to submit its recommendations on the proper methods and procedures for diverting the excess glider trainees. The following day the Command did so, recommending that all excess trainees be screened to determine their qualifications for other training or assignment. All students over thirty-seven years of age were to be given an opportunity to request discharge from the Service. Those trainees wishing to return to their former Arm of the Service and those who qualified and desired to apply for aviation cadet training, ground or aircrew, should be permitted to do so. Personnel having a minimum of 200 hours of flying time in heavier-than-air aircraft should be allowed to qualify for service pilot rating, and those with a minimum of 100 hours should be given an opportunity to attend the Central Instructors School. If qualified, trainees should be accorded an opportunity to apply for liaison pilot training or the Army Air Forces Administrative or Technical Officer Candidate Schools. Qualified trainees who desired to attend Officer Candidate Schools in other Arms of the Service should be given such an opportunity. Personnel wishing gunnery training, who had previously completed a course at an Army Air Forces Technical Training School, should be allowed to pursue this training. It was further recommended that "personnel who are qualified for or desiring any of the above opportunities for assignment be transferred to the Technical Training Command." The Flying Training Command felt that these trainees, who through no fault of their own had been forced to abandon desired training, should be accorded every possible consideration and first priority for the training they requested.<sup>23</sup>

Headquarters partially or wholly approved most of the Flying Training Command's recommendations, and on February 23 the Director of Individual Training, as directed by A-1 the previous day,<sup>24</sup> authorized the Flying Training Command to commence the diversion of excess glider personnel. The Command was

20. Memo for G-1 by A-1, Feb. 16, 1943, in AAG 353, Glider Training.

21. R&R, A-1 to AFRIT, Feb. 25, 1943, in *ibid.*

22. Daily Diary, A-1 Division, Feb. 22, 1943, in AAG 310.1 B, Daily Diary.

23. CG,AAFFTC to CG,AAF, Feb. 17, 1943, in AAG 221 #2, Pilots.

24. Daily Diary, A-1 Division, Feb. 22, 1943.

SECRET

C4-2555,AF

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RESTRICTED  
SECURITY INFORMATION

SECRET

65

The Glider Survey Board. In compliance with the directive a "special Glider Survey Board of eight officers was appointed to ascertain the desires and qualifications of each glider trainee with respect to his future, and to make appropriate recommendations for the disposition of each man." The members of the board were: Lieutenant Colonel W. L. Tubbs, President, Roswell Army Flying School, Roswell, New Mexico; Lieutenant Colonel H. A. Schmid, Central Instructors School, Randolph Field, Texas; Major D. M. Hamilton and Major H. V. Phillips, Headquarters, Flying Training Command, Fort Worth, Texas; Captain A. L. Lowery and Captain A. M. Doane, Santa Ana Army Air Base, Santa Ana, California; and Captain O. M. Brown and Captain F. P. Dunne, San Antonio Aviation Cadet Center, San Antonio, Texas.

The board convened at Headquarters, Flying Training Command March 2, 1943. The plan for the personal interviews of approximately seventy-five hundred cases was established, with special emphasis on the fact that these men were volunteers and that every consideration should be given to their individual wishes, providing they had some aptitude for the type of duty or training preferred.

The board visited each of the thirteen installations where glider trainees were stationed, and at each post all glider trainees except those already in advanced training were assembled and given an "orientation talk reviewing the situation, explaining the purpose of the board's visit, and outlining the dispositions available." Each man filled out and signed a printed form indicating his first, second, and third choices for further assignment, together with his military and civilian record. On the basis of a personal interview and the information on his form, the trainee's disposition was determined. He was rated, on a scale of from 1 to 10, as to personality, bearing and general qualifications for the disposition chosen. This plan proved to be extremely workable, the survey being conducted between March 6 and 28.

A total of 7,058 trainees was interviewed. These included all the glider trainees except those already in the advanced stage of training, those absent on furlough or for other reasons, and officers pursuing glider training in grade. The board decided that the disposition of these officers should be handled through normal procedures.<sup>33</sup> They were offered the opportunity to transfer to aircrew training if qualified. Those who did not meet the requisite qualifications or who did not desire this training were relieved from glider training and returned to their former organizations.<sup>34</sup> Only those trainees who had completed the basic stage were permitted to apply for further glider training. The choices of the glider trainees were as follows:

Desired Disposition	1st Choice	2nd Choice
1. Discharge (over 38 years of age)	1	0
2. Reassignment to Former Arm of Service (including reassignment in enlisted status within the AAF)	100	115
3. Appointment as Aviation Cadet	1216	900
4. Service Pilot Rating	31	36
5. Appointment to Central Instructors School	307	885
6. Appointment to OCS AAF Administrative	410	1016
7. Appointment to OCS (other Arms or Services)	341	836
8. CAA War Training Service (Requiring inactivation to ERC)	513	678
9. Flexible Gunnery Training	220	668
10. Transfer to AFTTC for technical training	195	630
11. Discharge from the army (as having enlisted for glider training only)	602	281

33. Final Report, Glider Survey Board.

34. Daily Diary, AAFFTC, April 1, 1943.

SECRET

C4-2555,AF

SECRET

RESTRICTED  
SECURITY INFORMATION

67

Sent to OCS Other Arms and Services	133	
Sent to Flexible Gunnery Schools	153	
Sent to TTC Schools	779	
Reassigned to Former Arm of Service or the Air Corps (reverted to grade held prior to entering glider pilot training)	473	
CAAWTS	79	
Processed for Service Pilot	8	
Miscellaneous	3	
Total Disposition	7321	38

By April 1, 1943, the tremendous task of reassigning the 7,321 excess glider pilots and glider pilot trainees was virtually completed. The Flying Training Command had made a sincere effort to assign personnel to the type of duty they desired, and on the whole diverted personnel were satisfied with their new duties. Naturally, in a project so large, there had been a few cases of maladministration and resultant dissatisfaction on the part of the trainees. 39 On the first of April the Assistant Chief of the Air Staff, Training commended the Command on its "expeditious and intelligent handling of this difficult problem in such a manner as to operate to the best interests of the War Effort." 40

Summary. With the opening of the new calendar year, the increasingly serious problems and basic disorder native to the glider program finally forced a type of program revision unparalleled in the history of Air Forces training. Throughout January, 1943, for the first time all concerned agencies asserted their convictions as to the proper future course of the program. Each advanced a new basis for production quotas, founded on separate, and in some cases, heretofore unexpressed considerations. The presentation of these culminated in a sweeping revision of the entire program: a new and more integrated production basis, an unprecedented diversion of over one-half of the students to other types of training, and a curtailment of training to one stage. The glider program had entered a new phase; the major problems of the past were alleviated; training could now develop more efficiently and effectively under the coordinated efforts of all agencies concerned in the execution of the glider program.

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38. Final Report, Glider Survey Board.

39. "Soldiers" to President Roosevelt, May 20, 1943, in AAG 031.1, The President.

40. AC/AS, Training to CG,AAFFTC, April 1, 1943, in AAG 221 #2, Pilots.

SECRET

C4-2555,AF

SECRET

RESTRICTED  
SECRET INFORMATION

69

	Dual	Hours Solo	Total
a. Take-offs, Fundamentals and Landings	1:00	1:00	
b. Air Work (High Tow)	1:00	1:00	
c. Traffic Patterns and Landings	1:00	3:00	
d. Descent on Tow	1:00	1:00	
e. Navigation Training		2:00	
f. Formation Flying	0:30	0:30	
g. Proficiency Check and Review	1:00	1:00	
			15:00
2. Minimums to be given are:			
a. Dual		5 hours	
b. Solo		7 hours	
c. Total Flying		15 hours	
d. Number of unassisted landings		20	
e. Minimum day time before beginning night flying		4 hours	

In more detail than previous instructional guides, this program recommended a breakdown of training, establishing minimum requirements and proficiency standards. On the flying line it was not rigidly followed, weather conditions, equipment, and instructor personnel dictating certain expedient changes.<sup>6</sup>

With the February 26 program as a guide and with many of the early difficulties attendant to glider training disappearing, the Lubbock school began to train glider pilots more adequately than heretofore. Conversations with glider personnel indicate that the fifteen-hour course was still considered too brief in that it only allowed the individual training of the glider pilot. Practically no time was available for "polishing" the glider pilot or for elementary tactical training. All flying was done with training type landing gear until they progressed to the operational phase. It is interesting to note in this connection that German glider pilot training reportedly requires a minimum of twenty starts and more than twenty hours flying in cargo gliders to secure a certificate comparable to graduation from Army Air Forces advanced training. In addition to this, to be fully qualified, the German glider pilot must win a further certificate, the attainment of which includes successful completion of blind flying, at least eight night flights, eight flights with full loading, and a number of cross-country flights.<sup>7</sup>

Gradually the training of glider pilots was undergoing significant changes as a result of further experimental and tactical work. Experiments in instrument towing of gliders indicated that the low tow position would be employed in some operations. Consequently, on May 4, 1943, the glider school was instructed to incorporate training in this position in its program of instruction.<sup>8</sup> This was done, one-half hour being given in day operations, and an equal time at night.<sup>9</sup> Another new training development dictated by tactical needs was the institution of landing from low approaches with minimum landing roll.

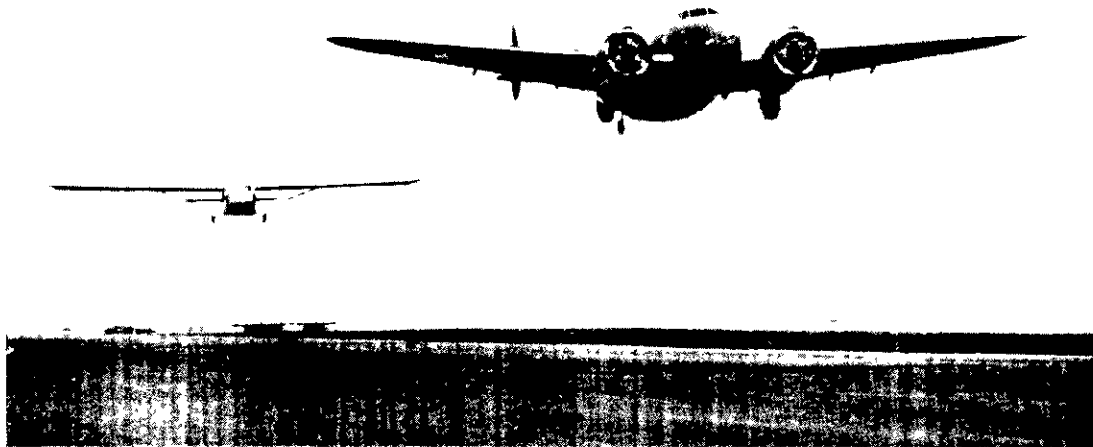
As a result of somewhat successful double towing tests with the C-60A airplane, the Flying Training Command was instructed to adopt double towing, at least on an experimental basis, at the glider school.<sup>10</sup> After experimentation at South Plains, it was reported that the double tow was considered impractical because:

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6. Ibid.
  7. Detailed Interrogation Report on Glider Pilot captured at Chaoaut on May 8, 1943, Accession No. K-26105, Air Staff Intelligence Library.
  8. AG,AAFFTC to CG,GCAFTC, May 4, 1943, in AAFFTC Files.
  9. 2nd Indorsement (AG,AAFFTC to CG,GCAFTC, May 4, 1943), Asst. Director of Training, SPAFS, Lubbock, Texas, to CG,GCAFTC, May 27, 1943, in ibid.
  10. AC/AS, Training to CG,AAFFTC, April 8, 1943, in ibid.

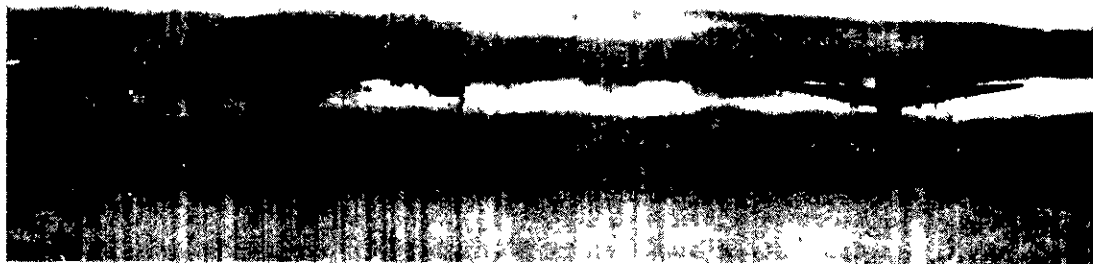
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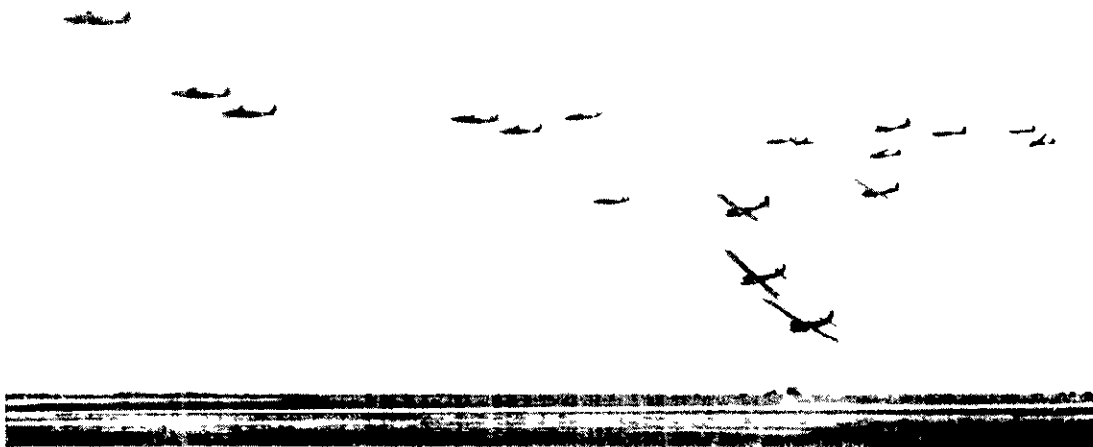




Lockheed C-60 takes off with CL-1A glider in tow.



Formation towing of combat gliders in echelon of three.



Gliders in formation release from tow plane and swoop down for landing.

As advanced training on tactical type gliders received the benefit of several months' experience, training became more standardized and pointed toward eventual operational employment. Slowly, developing combat tactics and techniques commenced to influence training.

RESTRICTED

SECRET

71

of basic military training, the hours and emphasis as prescribed in the program of instruction were changed. Lack of qualified instructors made it impossible to institute the entire course in guerrilla warfare; it was limited to unarmed defense and judo.<sup>14</sup> A well organized program of flying in light airplanes designed to maintain the flying proficiency of the pooled trainees was in operation at an auxiliary field.<sup>15</sup>

Glider Maintenance Course. Arrangements had been made with the Technical Training Command whereby every Thursday sixty-three students from the consolidated pool were ordered to Sheppard Field, Texas, for the glider maintenance course.<sup>16</sup> Early in January, 1943, in an effort to occupy more usefully the time of pooled glider trainees and to qualify them more adequately for field maintenance, Headquarters inquired into the practicability of ordering candidates on detached service to the Technical Training Command for the forty-day glider mechanic course.<sup>17</sup> Subsequently, on the nineteenth of January the Flying Training Command was directed to assign 100 students each ten days to Sheppard Field for this course.<sup>18</sup> Possibly due to subsequent disruption of the program, this was not carried out immediately, but by April this phase of the program was in full operation. The glider mechanic course, now increased to sixty-five days, proved to be an extremely valuable phase of the glider pilot's training, especially those ten days devoted to the crating, uncrating, and assembling of gliders, as such activity was one of the contemplated duties of the glider pilot in a theater of operations.<sup>19</sup> Due to the inclusion of this phase in the glider mechanic course, similar instruction was discontinued at the Advanced School.<sup>20</sup> On August 1, 1943, the Training Command<sup>21</sup> was instructed to reduce the glider mechanic course for glider pilots to thirty days' duration, with special emphasis on rigging and assembly of the CG-4A and the ability to supervise generally glider maintenance. Those trainees failing to complete this course successfully are now eliminated from further glider pilot training.<sup>22</sup>

On the whole, it would seem that the directing personnel of the Lubbock school have made a sincere effort to provide adequate instruction and occupation for the pooled trainees, improvising when necessary equipment was not available, writing their own texts, and instructing their own instructors.

Materiel Requirements. With the reduction of the glider pilot training objective, the Flying Training Command's acute materiel problem was at last solved. Only the problem of providing storage facilities for equipment not in use remained. Upon the closing of the Basic Glider Schools, it was planned to make TG-5, TG-6, and TG-8 gliders available to the C.A.A. War Training Service, as their parts were interchangeable with the liaison type planes being used by that agency.<sup>23</sup> The Command reported to Headquarters the numbers of excess basic gliders and liaison type planes available for disposition; however, in April as tentative plans were being formulated for the training of 2,000 glider pilots in 1944, the

14. 5th Indorsement (AC/AS, Training to CG,AAFFTC, May 7, 1943), Asst. AG,AAFFTC to CG,AAF, June 8, 1943, in AAFFTC Files.
15. 1st Indorsement (AC/AS, Training to CG,AAFFTC, May 7, 1943), AG,AAFFTC to CG,AAF, May 26, 1943, in *ibid.*
16. 3rd Indorsement (AC/AS, Training to CG,AAFFTC, May 7, 1943), CO,SPAFS, Lubbock, Texas, to CG,GCAFTC, May 22, 1943, in *ibid.*
17. R&R, AFRIT, Flying Training Section to AFRIT, Technical Training Section, Jan. 11, 1943, in AAG 353, Glider Training.
18. Daily Diary, AFRIT, Jan. 19, 1943.
19. AG,AAFFTC to AC/AS, Training, April 27, 1943, in AAG 352.11, Glider Schools.
20. AC/AS, Training to CG,AAFFTC, April 29, 1943, in 452.1 Gliders.
21. On July 7, 1943, the Flying Training Command and the Technical Training Command were consolidated in one organization, the Training Command.
22. AC/AS, Training to CG, Air Forces Training Command, Aug. 1, 1943, in AAG 353, Glider Training. (Air Forces Training Command hereinafter cited as AAFTC).
23. AFRIT to CG,AAFFTC, Feb. 25, 1943, in AAG 452.1, Gliders.

SECRET

C4-2555,AF

SECRET

73

although the length of the course remains at one month, the prescribed hours of first pilot time have been increased from fifteen to twenty-five hours.

From an examination of the new program of instruction, it can be seen that the individual training of the glider pilot by the Training Command has taken a major step toward preparing the pilot for his "war-time mission." At last, slowly developing combat tactics and techniques are influencing the training program. The general plan of instruction is established as follows:

	Dual	Solo	
1. Transition to CG-4A Gliders	2	3	5
2. Tactical Type Landings	2-1/2	5-1/2	8
3. Night Flying (Formation and Landings)	2	4	6
4. Double Tow (Simulated Small Field Landings)	1		1
5. Formation and Tactical Landings (Over Obstacles)	1	1	2
6. Contour Cross-Country (Maximum altitude 200 feet)		2	2
7. Proficiency Check	1		1
8. Instrument (Link Trainer)		(5)	
Total Hours		25	32

For the first time special emphasis is placed on tactical type landings; all landings are now to be accomplished over a hurdle up to a simulated barrier with the glider fully loaded. With the increase in hours, double towing of the CG-4A glider, which was previously excluded due to time shortage, has been made a part of the advanced course. And now for the first time glider pilots are introduced to tactical type landing gear before proceeding to operational training. In order to graduate, they must satisfactorily accomplish at least one "tactical gear take-off and skid landing as pilot, co-pilot, or passenger."<sup>33</sup>

This new program has not yet been tested, and it remains to be seen whether these newly instituted training methods will produce a more polished and proficient glider pilot. The general feeling, however, among the individuals closely connected with the program is that at last the Training Command will be able to produce a graduate of a quality consistent with its capabilities and desires. Individual training will now develop more logically into tactical training. Further ideas, theories, and experimental developments are now brewing both in Washington and on the operational and training flying lines. It is possible that the near future may bring even a more radical revision of the glider training program.

Plans for 1944 Glider Program. Although there were enough glider pilot trainees in the South Plains consolidated pool to continue training through 1943, as early as April of that year, Headquarters began to make plans for the 1944 Glider Program. Throughout the spring and early summer considerable discussion occurred, the 1944 requirement being unofficially placed at 2,000 glider pilots, but a definite decision was not reached.<sup>34</sup>

During this period the Flying Training Command and the Office of the Assistant Chief of Air Staff, Training initiated action to alter the procurement basis for future trainees. Past and somewhat bitter experience had indicated that "power pilots became proficient as glider pilots after a very short transition, whereas glider pilots training as such do not seem to grasp the fundamentals of flying which is a vital factor in glider operation."<sup>35</sup> Consequently, on April 28 the Assistant Chief of Air Staff, Training recommended that the 1944 glider pilot quota be filled from graduates of the Advanced Pilot Schools. These power pilots

32. TC Memorandum No. 50-4-1, Aug. 1, 1943.

33. Ibid.

34. Memo for Col. J. H. Pool, AC/AS, Training by Capt. G. B. Ryan, AC/AS, Training, April 27, 1943, in AAG 211, Glider Pilots.

35. R&R, AC/AS, Training to AC/AS, OC&R, July 5, 1943, in AAG 353, Glider Training.

SECRET

C4-2555,AF

RESTRICTED  
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SECRET

75

assembly of the CG-4A glider. The directive also prescribes a basic stage of "familiarization with glider operations and the handling of extremely light wing loadings on training type gliders." The establishment of this phase of instruction, however, rests on the decision of the Training Command. The advanced course is to be similar to that now in operation. An appropriate ground course will supplement each phase of training.<sup>42</sup>

The Training Command now has several months to determine the details of the new glider pilot training program. Two and one-half years of experimentation in training methods and the recent development of tactical requirements, coupled with a steady flow of more adequately qualified trainees and a sufficiency of materiel, should produce a more standardized, coordinated, and productive training program. The advanced phase has at last been accorded the time believed required, but the other controversial question, the worth of the basic training glider, remains to be determined.

Measurement of Production. Two and one-half years of training experimentation and development have noticeably increased the quality of the Training Command glider pilot graduate. Quantitatively, the production total is not a true measurement of the effort and labor that have gone into glider pilot training. As of July 31, 1943, 3,081 students had been graduated from advanced training and rated as glider pilots.<sup>43</sup> The shifting objective in force throughout 1943, however, had effected the partial training of many more candidates. Up to the disbandment of the Elementary and Basic Schools in March, 1943, 8,520 students had graduated from the elementary and 6,760 from the basic stage.<sup>44</sup> Training throughout the remainder of the calendar year 1943 should produce an additional 1,000 glider pilots,<sup>45</sup> while 1944 production quotas contemplate another 2,400.<sup>46</sup>

Naturally, the rapid establishment and execution of a hitherto untried type of training was achieved at a great financial as well as error cost. The training of the glider pilot has yet to undergo combat test, but individual training is now receiving the benefit of tactical procedure development. With comparative standardization of the many training variables, it is hoped that both quality and quantity production will achieve their maximum potentialities.

Summary. The revision of February 18, 1943, resulted in a singular alteration of the character of the glider pilot training program. Training effort was concentrated in the advanced stage, and the decrease in obstructions to its proper accomplishment enabled the training agencies to focus on its development and improvement. In no other period did the advanced, or any other training phase, undergo so many beneficial changes. Consciousness of the combat mission of the glider pilot, his relative position in the conduct of airborne operations, and the development of tactics and techniques in operational training all united to produce significant modifications and necessary innovations. For the first time coordinated planning of a future program was accomplished. The individual training of the glider pilot at last achieved a position from which it could operate on a plane comparable with the other training functions of the Air Forces.

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42. Ibid.

43. Consolidated Flying Training Report, July, 1943, in AFHHD Files. See Appendix A.

44. Ibid., March, 1943, in ibid.

45. AAFTC Condensed Flow Charts, Aircrew Training, Aug. 1, 1943, in ibid.

46. AC/AS, Training to CG, AAFTC, Aug. 21, 1943, in ibid.

SECRET

C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

77

carry combat troops and auxiliary combat equipment to effective locations in combat zones from which to begin effective combat operations. Their secondary mission is to maintain combat supply and resupply to units in the combat zone by distribution of air service and other supplies from Air Transport and other fixed bases to advanced landing areas in combat zones and to evacuate casualties and other personnel and materiel from combat zones.<sup>4</sup>

Thus the mission of the I Troop Carrier Command in the continental United States was to supervise and conduct the training of these units which provided for the air movement of troops and equipment, including glider-borne troops.<sup>5</sup>

Availability of Materiel. But before operational training could get underway, the proper disposition of available tow planes and gliders had to be determined. During the summer of 1942, quantity delivery of fifteen-place gliders was expected by that fall. Consequently, the Army Ground Forces commenced to evolve plans for the training of the glider echelons of two airborne divisions, the 82nd and the 101st.<sup>6</sup> But in August a difficult problem developed regarding the availability of Troop Carrier groups. Originally, eight of the ten Troop Carrier groups scheduled for activation during 1942 had been committed to the United Kingdom by October 1, 1942.<sup>7</sup> On August 18, however, a decision of the Deputy Chief of Staff deferred the movement of three of these groups.<sup>8</sup> A total of five groups was now available in the United States, but these had to be divided equitably between the Troop Carrier Command, the Flying Training Command, and the Airborne Command to effect transport pilot transition training, glider pilot training, and airborne tactical training. Naturally, each Command desired to have the requisite number of Troop Carrier Groups to accomplish its particular phase of training, and throughout August and September considerable controversy occurred in Headquarters relative to the disposition of these groups. Two groups had already been allocated to the Flying Training Command to effectuate its advanced training, but these were to be withdrawn early in 1943 as C-60 airplanes became available. Finally, on September 19, 1942, it was decided that one group would be given to the Airborne Command after October 31, another after November 30, and a third after January 31, 1943. The group allotted to the Troop Carrier Command would also be used in combined training with the Airborne Command.<sup>9</sup>

But the question of the glider echelon was not solved. Troop Carrier Group Tables of Organization provided for thirty-eight CG-4A gliders for each squadron,<sup>10</sup> but fifteen-place glider production at this time would not by any means meet these requirements. As training by the Flying Training Command was granted first priority, it was decided that the first 156 gliders would be delivered to that Command and the next 208 to the Airborne Command.<sup>11</sup> Gradually during the early months of 1943 the Troop Carrier groups began to receive their assigned gliders.

Operational Training Program. On September 1, 1942, the Troop Carrier Command published a comprehensive training directive. Gliders, however, had not yet been assigned to Troop Carrier units; therefore, glider operating procedures and tactics had not been developed. It was planned that as soon as gliders were received and experience had been gained in their operation, glider pilots would "engage in operational training during the advanced training period of the power pilots so that Troop Carrier Squadrons may move into

4. CG, I TCC to AC/S, OPD, Jan. 17, 1943, in AAG 322, Airborne Command and Troop Carrier Command.
5. CG, I TCC to AC/S, OPD, Jan. 22, 1943, in *ibid.*
6. Memo for Chief of Staff, Attn: G-3, through CG,AAF by CG,AGF, Aug. 16, 1942, in AAG 452.1 B, Gliders.
7. Memo for G-3 through CG,AGF and AC/S, OPD by AC/AS, Plans, Aug. 30, 1942, in AAG 353.9 F, Training General.
8. Memo for CG,AAF by G-3, Aug. 21, 1942, in AAG 353.9 E, Training General.
9. Memo for CG,AAF and CG,AGF, Sept. 19, 1942, in AAG 353.9 F, Training General.
10. WDGS D/F, G-3 to CG,AAF, Aug. 26, 1942, in *ibid.*
11. Memo for CG,AAF by AC/S, OPD, Sept. 26, 1942, in AAG 321.9-3, Groups.

SECRET

C4-2555,AF

SECRET

79

and serve to raise morale by alleviating promotion stagnation. Troop Carrier Squadron Tables of Organization provide for one first lieutenant, one second lieutenant, and twenty-seven flight officer glider pilots for each squadron. Many officers had applied for glider pilot training in the belief that they would receive rapid promotion. They had undergone a long period of training without promotion, and there was now little hope of advancement under existing Tables of Organization. The only other positions open to glider pilots were one captain, S-3 in Troop Carrier Group Headquarters, and one major in A-3 of General Headquarters.<sup>17</sup>

The Troop Carrier Command groups, however, were operating with a shortage of staff and administrative officers. There were some glider pilot officers naturally fitted to fill these positions. Consequently, coneraction was initiated in Headquarters, and it was decided that it was not necessary to reclassify glider pilots but that they should fill these vacancies, as rated pilots can maintain their flying status while in administrative positions.<sup>18</sup> In this manner both glider pilots and the Troop Carrier Command benefited.

Establishment of Glider Pilot Combat Training Unit. As the Flying Training Command was graduating glider pilots more rapidly than they could be effectively employed by the Troop Carrier Command, the board of officers appointed February 11, 1943, to determine the 1943 Army Glider Program had ruled that the Troop Carrier Command should "set up a school for glider pilot graduates that may be accumulated within the command."<sup>19</sup> During March the Troop Carrier Command commenced to effect this directive, and on April 5, 1943, the Glider Pilot Combat Training Unit was established at Bowman Field, Kentucky. All glider pilots received from the Flying Training Command are now assigned to this unit and receive an intensive course in basic military subjects, thereby better preparing them to serve as commissioned or flight officers in Troop Carrier tactical squadrons.<sup>20</sup>

The establishment of such a unit, necessarily of a large size, required an organization distinct from the station complement.<sup>21</sup> The Troop Carrier Command, therefore, organized the Glider Pilot Combat Training Unit

to be operated by a Training Headquarters, consisting of an officer in charge of training, assisted by an officer in charge of ground training and an officer in charge of technical training. The glider pilots will be assigned to squadrons of 200 men each, each squadron containing four flights. Each squadron will be assigned to a Provisional Group Headquarters, which in turn reports to the Commanding Officer of the Glider Pilot Combat Training Unit. All squadron and group executive and administrative positions are filled by members of the Glider Pilot component who are qualified for such duty. All flight leaders, drill instructors, engineering officers and other supervisory positions will be filled by glider pilots whose previous military experience qualify sic them for such duty.<sup>22</sup>

Graduate glider pilots are now flowing to the Troop Carrier Command at the rate of 250 a month, to continue through November, 1943, for a total of 2,000. As this number exceeds the requirements of Troop Carrier units now in the United States and those scheduled for activation during 1943, it was decided to employ the excess for loss replacements and for

17. AFRIT to AFRAS, AC/AS, Program Planning, AS/AS, A-1, AFPMP, March 17, 1943, in AAG 211, Glider Pilots.

18. AC/AS, Training to CG,AFTCC, June 4, 1943, in AAG 211 A, Pilots.

19. Board Report on Recommendations for Army Glider Program, Feb. 11, 1943, in AAG 452.1, Gliders.

20. 1st Indorsement (AFRAS to CG,AFTCC, March 28, 1943), AG,AFTCC to AFRAS, March 31, 1943, in AAG 221 #2, Pilots.

21. CG,AFTCC to AC/AS, Training, April 22, 1943, in AAG 320.4 #2, Manning Tables.

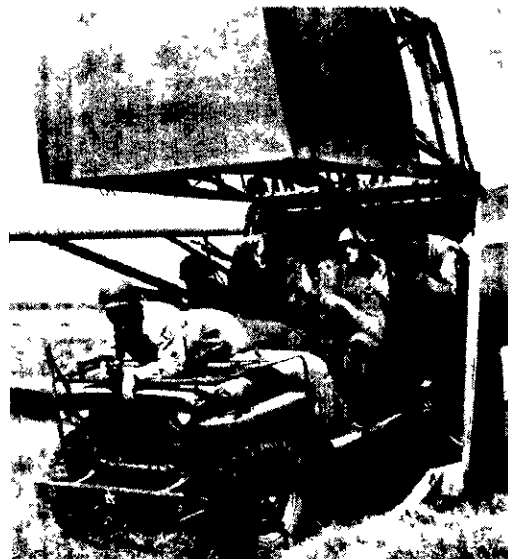
22. 1st Indorsement (AFRAS to CG,AFTCC, March 28, 1943), AG,AFTCC to AFRAS, March 31, 1943, in AAG 221 #2, Pilots.

SECRET

C4-2555,AF



Glider Infantry take off for a combat mission.



Glider lands; Infantry and glider pilots ready for attack.



Glider pilots train for chemical warfare.

Throughout the glider program there was a growing realization of the need for training the glider pilot for his combat role after the glider had completed its transport mission. Intensive ground combat instruction was added both to the individual and unit phases of training. The glider pilot is a tough ground soldier as well as a proficient pilot.

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SECRET

81

suggested that technical training include all phases of the operation, maintenance, and structure of liaison type airplanes, their engines, and gliders. Intensive communications and weather training was also prescribed.

Flight training was to be given in both gliders and liaison type planes. The glider pilot training was specified as that set forth in the Troop Carrier Command program of instruction of January 5, 1943.<sup>26</sup> As the theories for the tactical employment of gliders were being developed, it became evident that in combat operations gliders would have to be landed in small fields, often at night. Consequently, the Troop Carrier Command is making a special effort to perfect the glider pilot's technique

in slow landings, spot landings, and formation approaches. They are also being taught to fly in a much higher tow position than used in their original training in the CG-4A glider. Restricted small fields bound by obstacles consisting of cloth strips hanging on ropes suspended between light poles have been constructed on the bases in which glider training is being practiced and all glider pilots are being given training in landing on small fields. The glider pilots were taught to land at 100 to 110 m.p.h., and it requires considerable time to change this technique to slow landing at approximately 50 m.p.h. . . .<sup>27</sup>

Supplementary to glider training "for the purpose of maintaining pilot proficiency and qualifying rated glider pilot for World pay" training was to be given in liaison type craft.<sup>28</sup> It is generally felt that past experience has demonstrated that a man who cannot fly a plane properly cannot pilot a glider with the precision necessary for tactical operations. Therefore, for two hours every day glider pilots are given flying in liaison type aircraft. They are required to fly a special pattern making a three-point landing to a precision mark. Their performance must be absolutely perfect, both day and night.

Plans for Future Troop Carrier Training. After the glider pilots have completed this five-month training course at Bowman Field, plans are now being made, in compliance with an oral directive from General Arnold, to transfer them to an Advanced Glider Training Base to be located at Raleigh-Durham, North Carolina.<sup>29</sup> From conversations with glider personnel, it is contemplated that here the glider pilots will be given an intensive thirty-day training course of twenty-five to thirty hours of combat training on the CG-4A glider or any other craft that may in the future be employed for combat operations. It is planned that this training will simulate as closely as possible combat maneuvers--as these maneuvers are developed.

After completion of the course at the Advanced Training Base, it is planned that the glider pilots will be transferred to Troop Carrier tactical units about ten days before these units enter intensive combined combat training with the Airborne Command. This training is to last about two months prior to overseas commitment of the Troop Carrier units.

Summary. Troop Carrier Command operational glider training from the date of its effectuation to the present time has been characterized by a period of experiment and development similar to that undergone by individual training. There first existed a phase when glider training was hindered by a lack of tow planes and gliders, inadequate knowledge of glider procedure, and personnel problems. Then there followed a time of development of training methods and procedures. With the establishment and effective operation of the Glider Pilot Combat Training Unit, training became more standardized and comprehensive. It is still developing and expanding. In the planned establishment of the Advanced Glider Training Base an agency will be created to provide more effective utilization of new combat tactics and techniques.

26. Ibid.

27. 1st Indorsement (AFSAG to CG, AFTCC, June 26, 1943), AG, AFTCC to AFSAG, July 6, 1943, in AAG 354.2, Maneuvers.

28. Training Directive, Glider Pilot Combat Training Unit, April 27, 1943.

29. R&R, AC/AS, Training to AC/AS, MM&D, Aug. 17, 1943, in AFIHD Files.

SECRET

C4-2555,AF



RESTRICTED  
SECURITY INFORMATION

SECRET

83

signed to them."<sup>8</sup> But to personnel more closely connected with the satisfactory execution of the glider program, the maneuvers pointed out one important deficiency; the absolute coordination necessary for successful airborne operations was not yet being attained in Troop Carrier training.<sup>9</sup>

It would seem that the success of the glider operation was impaired to some extent by the traditional lack of understanding and cooperation between the Air and Ground Arms, a certain distrust in the proficiency of the glider pilots and the safety of the gliders existing among the airborne officers. As has been demonstrated, the champions of the glider program continually have had to contest this somewhat clandestine feeling among both Air and Ground personnel. Gradually, however, this unfavorable attitude seems to be decreasing, confidence in the worth and eventual successful tactical employment of the glider becoming manifest in Army thinking.

Plans for Conclusive Demonstration. As the May airborne maneuvers had by no means successfully demonstrated the tactical possibilities of the glider, it became increasingly apparent that its potential value must be vindicated. A few individuals, notably in the Office of the Special Assistant for the Glider Program, were convinced that its worth could be demonstrated after a short period of intensive training under proper supervision.

In June plans for such a demonstration were initiated in the Office of the Special Assistant for the Glider Program. It was decided that the personnel and equipment of the 1 Troop Carrier Command would be employed, but that the Office of the Special Assistant for the Glider Program would exercise strict supervision. The plan was coordinated with the Assistant Chief of Air Staff, Training, and on June 21 a conference with the Commanding General and Chief of Staff of the Troop Carrier Command implemented the plans for the demonstration. The 38th Troop Carrier Squadron with its normal glider echelon and forty of the best glider pilots from the pool at Bowman Field were ordered to Laurinburg-Maxton, North Carolina, the site selected for the training and the maneuvers. Major Michael C. Murphy was delegated to supervise training, while Colonel P. E. Gabel, Office of the Special Assistant for the Glider Program, assumed comprehensive supervisory functions.<sup>10</sup>

The purpose of the demonstration and its preparatory intensive training was to determine the "full capabilities" of the CG-4A glider and to train the pilot personnel "to a high state of proficiency in the tactics and technique of tactical glider operation." Although airborne troops were to participate in the demonstration and the Airborne Command was to assist in establishing tactics and techniques, the actual determination of the glider operations was to be an Air Forces function. It was directed that intensive individual and unit training be carried out. In individual training special emphasis was to be placed on development of mutual understanding between the tug and glider pilots, extreme accuracy landings in small fields over obstacles, and the determination of methods of landing gliders on all types of terrain. Unit training was to attain the highest possible degree of proficiency in glider formations, low altitude navigation, and unit operations on all types of terrain.<sup>11</sup>

Laurinburg-Maxton Demonstration. Throughout July intensive training was carried out in the Laurinburg-Maxton area. The Flying Training Command sent nine C-60's with crews and glider pilots for a period of two weeks, while two officers from the School of Applied Tactics and a representative of the Air Service Command were present throughout the period.<sup>12</sup> During the training an attempt was made to achieve a standardized glider operating procedure. A limited number of glider pilots, as a system of progressive elimination was employed, became highly proficient in glider tactics as they were developed. In the determination of the possibilities of the CG-4A, all types of maneuvers were practiced and perfected. As had been directed, special emphasis was placed on landings on all types

8. AC/AS, OC&R to CG, AFTCC, May 28, 1943, in *ibid.*

9. AC/AS, Training to AFSAG, June 14, 1943, in *ibid.*

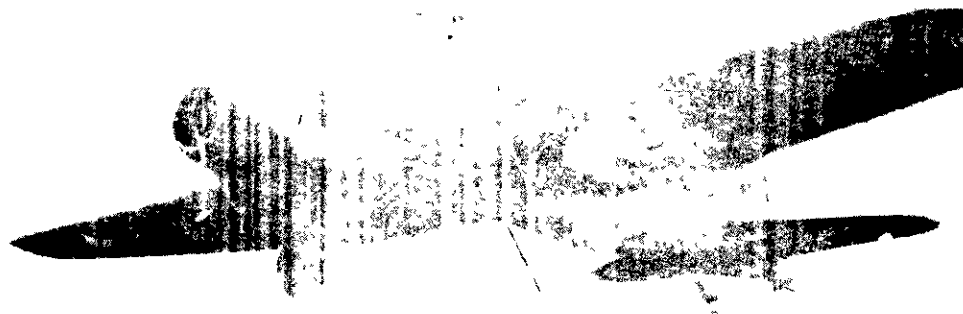
10. Memo for General Arnold by AFSAG, Aug. 18, 1943, in AFHHD Files.

11. AFSAG to Maj. M. C. Murphy, June 22, 1943, in AAG 353, Glider Training

12. Memo for Gen. Arnold by AFSAG, Aug. 18, 1943, in AFHHD Files.

SECRET

C4-2555,AF



Douglas B-23 towed into contact with pickup loop.



Pickup arm is down and ready to contact with looped nylon towrope strung on pickup stanchions.

The development of the pickup arm solved the serious problem of the difficulty of salvaging aircraft in small fields inaccessible to ground transportation. The pickup arm can evacuate wounded and can be used over and over.

SECRET

85

As demonstrated in the May airborne maneuvers, gliders, while engaged in combat operations, are highly vulnerable to both air and ground attack. During the early period of tactical development, it was generally felt that "a requirement exists for a heavily armed, armored assault glider to precede Troop Carrier gliders into fields and neutralize unexpected ground fire while Troop Carrier gliders are landing."<sup>20</sup> As early as June, 1942, action was initiated in Headquarters to develop an assault glider,<sup>21</sup> but after a year's experimentation, in September, 1943, the Office of the Special Assistant for the Glider Program recommended that its further development be terminated.<sup>22</sup>

Cargo Gliders. The primary purpose of the tactical glider had been established as a troop-carrier in combat operations. During mid-1942, however, the Air Forces began to visualize the glider as a cargo-carrying machine, a supplement to the transport airplane. It was hoped that the glider would become "a means for greatly increasing the value of the combat airplane by decreasing its dependence upon ground or surface transportation facilities."<sup>23</sup> During January and February, 1943, the Air Transport Command and Eastern Air Lines conducted towing tests with the CG-4A. The conclusion reached was that "the transportation efficiency of the C-49 or C-47 towing a CG-4A glider is very poor when compared to the airplane alone . . . C-49 or C-47 loaded to about 31,000 (pounds gross weight) will have a greater payload per hour than the combination with the airplane itself loaded to 28,000."<sup>24</sup>

Early in July, 1943, the Royal Air Force conducted an experimental 3,500-mile transoceanic tow with a CG-4A glider and a C-47 transport. This important "first" was preceded by many months of experimental hops with a fully loaded glider.<sup>25</sup> Although the experiment proved that gliders can be towed overseas, similar operations are not deemed economical or practical at the present time.<sup>26</sup> As the CG-4A is designed to tow at 120 miles per hour, and as this rate is considerably below the normal cruising speed of a transport plane, excessive gasoline consumption and loss of ton-miles per hour results. In the accomplishment of the flight, the glider and tow plane had to wait for good weather, and during the trip extreme pilot fatigue occurred.<sup>27</sup> The worth of the glider as a cargo-carrier over long distances has not yet been successfully demonstrated, although it is felt that this experiment was a step toward practical overseas glider transport.<sup>28</sup> It is possible that the development of the wing-designed cargo glider, as directed by the conference of February 11, 1943, may afford a feasible solution to the question of cargo glider transport.

Automatic Tow. Recently, an automatic towing device has been developed, which works "perfectly in all the standard aircraft maneuvers within the tolerance specified for automatic pilots." As this device solves the difficulties of pilot fatigue and the inability to tow under instrument conditions, it is hoped that gliders can be towed to theaters of operation under adverse weather conditions.<sup>29</sup> Gliders equipped with the automatic towing device are now being sent to tactical glider stations, and it has been directed that they must be employed to an extent that "every glider pilot is familiar with and has confidence in the auto-tow prior to his transfer to a combat theater."<sup>30</sup> In all probability continuing development and refinement of gliders and their accessories will produce a more efficient combat glider.

Combat Employment of Gliders. During this period of operational procedure development and glider refinement, proponents of the glider were particularly anxious

20. R&R, AC/AS, Training to AFSAG, June 14, 1943, in AAG 354.2, Maneuvers.

21. AFRGS to CG, AFTCC, Aug. 6, 1942, in AAG 452.1 B, Gliders.

22. Daily Diary, AFSAG, Sept. 2, 1943.

23. AFDMR to CG, AFAMC, June 18, 1942, in AAG 452.1 B, Gliders.

24. Report 4095, Army CG-4A Glider Towing Tests, Eastern Air Lines, New York, N.Y., Feb. 15, 1943.

25. Washington Post, July 5, 1943.

26. Historical Officer, Air Transport Command to AFHHD, July 12, 1943, in AFHHD Files.

27. Historical Officer, Air Transport Command to AFHHD, July 6, 1943, in *ibid.*

28. Historical Officer, Air Transport Command to AFHHD, July 12, 1943, in *ibid.*

29. Daily Diary, AAFETC, June 18, 1943.

30. AFSAG to CG, AFTCC, July 24, 1943, in AAG 353 A, Glider Training.

SECRET

C4-2555,AF

RESTRICTED  
SECURITY INFORMATION

SECRET

87

"vital factor" in "initial assault operations" on the European continent.<sup>34</sup> When invasion from the British Isles comes, United States gliders, glider pilots, and glider troops will undoubtedly be employed. Personnel closely connected with the program believe that then their tactical effectiveness will be absolutely vindicated. With combat participation the true results of two and one-half years of almost heartbreaking training effort by the Flying Training Command under vast, swiftly changing, and largely uncoordinated directives and the recent joint development of tactics and techniques by the Troop Carrier and Airborne Commands will be demonstrated.

Summary. The period since the tactical glider came into quantity production may be characterized as another experimental phase in the glider program. It has been marked by two interrelated trends, the development of combat tactics and techniques and the desire of the proponents of the glider to convince Air and Ground personnel of the value of their machine. Both of these trends are still growing in scope and force. In comparison with the history of other Air Forces weapons, the glider and its pilot had received the benefit of very little tactical technique development or operational training before commitment to combat operations. But the lessons of the Sicilian campaign and the Laurinburg-Maxton maneuvers, as well as materiel improvements, are steps toward the more efficient utilization of this new and potentially powerful weapon.

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34. General Arnold to Lt. Gen. J. L. Devers, Aug. 1, 1942, in AAG 312.1 C, Operations Letters.

SECRET

SECRET

RESTRICTED  
SECURITY INFORMATION

89

In recruiting personnel, both students and instructors, the glider program has been characterized by a shifting procurement basis closely allied with the changing directives under which it operated. In the experimental period trainees were obtained from officer-pilots of the Air Forces. But the requirements of the expansion program and established pilot priorities soon obviated the use of these men. With the 1,000 Program the qualifications were altered to accept Air Forces enlisted men with previous aviation experience, and although an attempt was made to return to the former procurement system, this basis continued until the 6,000 Program. Under the procurement effort of the 8,000 Program, the Air Forces found it necessary to tap every potential trainee source. Officers and enlisted men of the three Arms of the Service and civilian applicants were accepted. But under the press of wartime mobilization there were not enough men with previous aviation or glider experience. Finally, men without the requisite aerial experience were procured, causing the Air Forces to add an additional stage to glider training. A blistering publicity campaign was launched; men from all walks of life joined the glider program.

As the bulk of the trainees entered the glider program during the summer of 1942, and as the lack of both gliders and tow planes soon necessitated the tapering off of the objective, by the end of the year more trainees had been entered in the program than were required by the final objective. The candidates were accumulated in pools, were not afforded sufficient occupation, and an alarming morale situation developed. Then came the February, 1943, diversion of excess trainees. By the end of 1943 all remaining trainees will have been graduated. Through bitter experience as the operational phase developed the Air Forces found that many of the trainees without previous aviation experience did not possess the flying aptitude necessary for tactical glider pilotage. In the establishment of the 1944 program, an attempt was made to return the procurement basis to graduates of Air Forces Advanced Pilot Schools; controversy developed and a compromise was effected. Future glider pilot students will be procured from Air Forces enlisted personnel possessing aviation experience. Until November, 1942, graduate glider pilots were appointed staff sergeants. On that date this procedure was changed. Graduates are now appointed flight officers with possible future promotion to commissioned grades in the operational units.

Coupled with the difficulty of securing sufficient students, the glider program, especially in its early days, was hindered by a lack of adequately qualified ground and flight instructors. Much of the early training was given at civilian schools; and there were only a few men familiar with the technique of glider flying in the United States. Throughout the early period the ratio of students to instructors was far too high. Eventually, in August, 1942, graduate glider pilots were employed as instructors, and the situation noticeably improved.

The materiel factor, the acute shortage of both gliders and tow planes, was the major determinant of the successive downward revisions of the final objective. Even in the earliest days of the program this condition became manifest, growing in seriousness as the objective was rapidly increased. In June, 1942, the lack of training gliders necessitated an expedient change in the training program--the use of cub type airplanes and the institution of the dead stick landing course. The entire conduct of the program was predicated on the availability of tactical type gliders. When the plans for the first large program were formulated, an already overtaxed aviation industry was burdened with the construction of large numbers of hitherto unmanufactured craft. Serious materiel shortages and engineering problems developed; as a result, tactical gliders did not start coming off the production lines as soon as expected.

The shortage of both liaison type planes for towing training type gliders and C-47 and C-53 planes for towing tactical type gliders was even more acute. Production of these planes was not sufficient to meet all Air Forces commitments. Upward revision of the glider objective had thrown the original estimates based on the availability of transport airplanes completely out of gear. At length, in October, 1942, the Troop Carrier Command assumed the conduct of towing operations and remained in this capacity until sufficient C-60 planes to meet the requirements of revised objectives could be allotted to the Flying Training Command.

SECRET

C4-2555, AF

SECRET

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312.1 C	Operations Letters
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320.4 #2	Manning Tables
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321.9-3	Groups
322	Airborne Command and Troop Carrier Command
326.22 #2	Enlisted Men---Organized Reserve Corps
352.11	Glider Schools
353 #2	Civilian Pilot Training
353	Glider Training
353 A	Glider Training
353.01 A	Training Programs
353.9	Bombardier Training
353.9 A	Glider Training
353.9 B	Glider Training
353.9 C	Glider Training
353.9 3A	Glider Training
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SECRET  
91

C4-2555,AF

SECRET

93

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SECRET

C4-2555,AF

SECRET

APPENDIX B

Status of Airplanes Usable as Tow Planes for Advanced Glider Training  
September, 1942 - February, 1943

	1942 30 Sept.	31 Oct.	30 Nov.	31 Dec.	1943 31 Jan.	28 Feb.
Flying Training Command Requirement for Advanced Glider Training	154	88	114	114	114	114
Number of Planes Assigned to Advanced Glider Training (C-47's and C-53's) *	---	52*	104**	104**	104**	104**
Assignment of C-47's and C-53's <sup>1</sup>						
Air Transport Command	54	62	107	200	184	188
Troop Carrier Command	236	215	165	147	221	233
Continental U.S. Overseas	192	298	349	281	382	399
Air Service Command	74	53	33	130	54	64
Materiel Command	6	29	70	50	30	21
Other Continental Activities	---	---	1	1	1	---
Unreported***	91	52	10	26	27	59
Total	653	709	735	835	899	967
Assignment of C-60's <sup>1</sup>						
Air Transport Command	14	15	22	20	24	19
Troop Carrier Command (Overseas)	10	10	20	15	14	15
Air Service Command	1	2	4	9	15	8
Materiel Command	12	19	19	19	28	57
Other Continental Activities	10	4	1	3	10	14
Training Command	---	---	8	24	25	18
Unreported***	---	9	3	6	---	---
Total	47	59	76	96	116	131

\* One Troop Carrier group ) Groups without full  
 \*\* Two Troop Carrier groups ) complement of planes.  
 \*\*\* Not reported as of last day of the month.

1. Report No. SC-SP-112, Statistical Control, Sept. 22, 1943.

04-2555, AF



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## GLOSSARY OF ABBREVIATIONS

AAF	Army Air Forces
AAFTC	Training Command
AAG	Air Adjutant General
AC	Air Corps
AC/AS	Assistant Chief of the Air Staff
AC/S	Assistant Chief of Staff
ACTC	Air Corps Training Center
AFACT	Assistant Chief of Air Staff, A-3
AFAMC	Materiel Command
AFASC	Air Service Command
AFDAS	Deputy Chief of the Air Staff
AFDMR	Director of Military Requirements
AFDOP	Director of Personnel
AFGCTC	Air Forces Gulf Coast Training Center
AFIHD	Assistant Chief of Air Staff, Intelligence, Historical Division
AFPMP	Military Personnel Division
AFRAS	Director of Air Support
AFRIT	Director of Individual Training
AFROM	Director of War Organization and Movement
AFRGS	Director of Ground-Air Support
AFSAG	Special Assistant for the Glider Program
AFTCC	Troop Carrier Command
AFWCTC	Air Forces West Coast Training Center
AG	Adjutant General
AGF	Army Ground Forces
C.A.A.	Civil Aeronautics Administration
C/AC	Chief of Air Corps
C/AS	Chief of Air Staff
CG	Commanding General
CO	Commanding Officer
C.P.T.	Civilian Pilot Training (Program)
CS	Chief of Staff
D/F	Disposition Form
FTC	Flying Training Command
GCAFTC	Gulf Coast Air Forces Training Center
G.O.	General Order
G.H.Q.	General Headquarters
Hq.	Headquarters
1 TCC	First Troop Carrier Command
<u>Ibid.</u>	The same <u>or</u> the same place
MM&D	Materiel, Maintenance & Distribution
n.d.	No date

SECRET

97

C4-2555,AF

SECRET

INDEX

A-1, AC/AS, 25, 59-64 passim. See also Personnel, Director of and Military Personnel, Director of.

A-3, AC/AS, 13, 45, 47, 56, 59, 79. See Training, AC/AS.

A-4, AC/AS, 14, 59. See also Materiel Command and Materiel Division.

Adjutant General, The, 23-26 passim, 61, restriction on glider flying, 2.

Administrative Officer Candidate School, 63, 66.

Advanced schools. See Schools, advanced.

Air Corps Enlisted Reserve, 40.

Air Corps Reserve, 24.

Air Service Command, 22, 50, 51, 52, 61, 72, 83.

Air Support, Director of, 9, 47, 50, 54, 55, 59, 61, 76, 88. See Ground-Air Support, Director of.

Air Support Command, 2.

Air Transport Command, 37, 59, 60, 76, 85.

Airborne Command, 54, 55, 56, 76, 78, 81, 83, 87.

Airborne division, 11; 82nd, 77; 101st, 77; maneuvers of, 82.

Aircraft Preference List, 36.

Airman Certificate, 15, 18, 23. See also Civil Aeronautics Administration.

Amarillo, Tex., Elementary-Advanced School, 19.

Anderson Air Activities, Preliminary School, 19.

Anti-Aircraft, 82; Officer Candidate School, 66.

Applied Tactics, AF School of, 83.

Arizona Gliding Academy, Elementary-Advanced School, 19. See Wickenburg, Ariz., Elementary School.

Army General Classification Test, 23, 24.

Army Ground Forces, 14, 24, 54, 55, 62, 64, 77, 82, 83, 84.

Arnold, Gen. Henry H., 4, 6, 8, 9, 12, 14, 18, 37, 56, 68, 81, 86.

Auto tow, 32.

Automatic tow, 85.

Ballard, Col. R. H., 60.

Ballast, 15-place glider, 35.

Barringer, Lewin B., 7, 88, appointed coordinator of glider program, 9.

Base Services, Director of, 35, 41.

Basic schools. See Schools, basic.

Belgium, use of gliders in, 2, 4.

Big Spring Flying Service, Preliminary School, 19.

Blitz landing, 69, 72.

Borum, Gen. F. S., 58, 59, 76.

Bowman Field, Ky., 24, 79, 81, 83.

Brett, Gen. G. H., 4.

Brooks Field, Tex., opinion on glider training, 1.

Brown, Capt. O. M., 65.

Browning, Gen. Frederick A. M., 86.

Central Instructors School, Tex., 64, 65, 66, 74.

Cessna plant, 35.

Chanute, Octave, 1.

Chanute Field, Ill., processing station, 24.

Civil Aeronautics Administration, 2, 6-7, 10, 18, 23, 24, 25, 27, 33, 39, 40, 45, 46, 56, 66, 72; War Training Service, 71, 74.

Civil contract schools. See Schools, civil contract and Schools, preliminary.

Civilian Pilot Training Program, 6, 15, 18, 33, 40, 45, 52.

Clint Breedlove Aerial Service, Preliminary School, 19.

Congress, glider bills introduced in, 2.

Conference to determine glider program, 59-60.

SECRET

C 4-2555,AF

SECRET

101

Hamilton, Maj. D. M., 65.  
 Hamilton, Tex., Elementary School, 62.  
 Handy, Gen. Thomas T., 58.  
 Harper, Col. Robert W., 59, 60.  
 Harle Flying Service, Preliminary School, 19.  
 Hnck Flying Service, Inc., Preliminary School, 19.  
 Hunter Flying Service, Preliminary School, 19.  
  
 Individual Training, Director of, 14, 25, 26, 32, 34, 35, 37, 39, 45, 47, 50, 51,  
 54, 56, 59, 61, 63, 64.  
 Infantry, 82; Officer Candidate School, 66.  
 Instruction, Programs of. See Programs of Instruction.  
 Instructors, 8, 9, 19, 42, 89; lack of, 21, 38. See also Central Instructors School.  
  
 Jeep, glider transport of, 43.  
 John H. Wilson Glider School, Elementary-Advanced School, 19. See Lamesa, Texas.  
 Johnson, Gen. Davenport, 6.  
 Jolly Flying Service, Preliminary School, 19.  
  
 Keesler Field, Miss., processing station, 24.  
 Kelly Field, Tex., opinion on glider training, 1-2.  
 Kenneth Starnes Flying Service, Preliminary School, 19.  
 Kershaw, S. C., maneuvers, 82.  
 Kirtland Field, replacement center, 28.  
  
 L. Miller-Wittig, Preliminary School, 19.  
 Lamesa, Tex., Elementary School, 16, 62.  
 Landis, Col. R. G., 56, 60.  
 Langley Field, processing station, 24.  
 Langmead, Col. E. C., 60.  
 Laurinburg-Maxton, maneuvers, 83-84.  
 Lazy eight, value of, 32.  
 Lewis School of Aeronautics, first glider instruction, 5.  
 Lilienthal, Otto, 1.  
 Lincoln Air Base, 55, 56.  
 Link trainer, 22, 41; need for modification of, 32.  
 Lockbourne, Ohio, Elementary-Advanced School, 19, 30, 34, 42, 76; replacement  
 center, 28; instructors' school, 33; transfer of Advanced School from, 39.  
 Lowery, Capt. A. L., 65.  
 Lowry Field, Colo., processing station, 24.  
 Lubbock, Tex., Advanced School, 30, 40, 46, 62, 66, 69, 70, 71, 73.  
  
 McChord Field, Wash., processing station, 23.  
 McFarland Flying Service, Preliminary School, 19.  
 Maintenance of materiel, 29, 50-52, 78; ground school course, 22, 43;  
 structural failure of CG-4A, 46; mobile repair unit, 52.  
 Maneuvers, 82-84.  
 Manuals, Field. See Field Manuals.  
 Manuals, Technical. See Technical Manuals.  
 March Field, Calif., opinion on glider training, 1; processing station, 23.  
 Materiel, Gliders: procurement, 4, 11, 14, 17, 30, 34, 60; shortage, 30, 33,  
 34, 35, 44, 47; disposition, 50, 71-72, 77; new types, 15, 60, 84-85; testing,  
 36, 82-87, Instruments, shortage, 33; Light airplanes: procurement, 29, 30;  
 shortage, 22, 38; Tow planes: procurement, 11, 17, 34; shortage, 44, 46-47,  
 49-50; disposition, 77; testing, 37. See also Materiel Command and Materiel  
 Division.  
 Materiel Command, 14, 15, 18, 27, 30, 34, 36, 37, 50, 51, 54, 59, 60, 61.  
 Materiel Division, 4, 5, 8, 11, 38.  
 Meyers, Gen. Bennett E., 60.  
 Military Personnel, 16, 23, 28; Director of, 60, 61. See Personnel, Director of.

SECRET

C4-2555,AF

SECRET

103

Santa Ana (Calif.) Air Base, 65; replacement center, 28.  
 Schmid, Lt. Col. H. A., 65.  
 School of Applied Tactics, AF, 84.  
 Schools, civil contract, 6, 8, 12, 19, 20, 38; advanced, 8, 16, 62; elementary, 8, 45, 62; preliminary, 18-19, 20, 25, 29, 30, 39, 45, elementary-advanced, 25, 28; instructor, 42, basic, 45, 62; twin-engine, 68. See specific schools.  
 Schweizer Sulplanes, 5.  
 Scott Field, Ill., processing station, 24.  
 Services of Supply, 24, 62, 63, 64.  
 Shaw Field, S. C., processing station, 24.  
 Sheppard Field, Tex., 71.  
 Sherman Field, Kans., processing station, 24.  
 Sicily, use of gliders in invasion, 86.  
 Smyrna, Tenn., replacement center, 28.  
 Soaring, use in glider training, 7, 22, 32.  
 Soaring societies, 1, 68.  
 Soaring Society of America, 68.  
 Sooner Air Training Corp., Preliminary School, 19.  
 South Plains. See Lubbock, Texas.  
 Southeast Training Center, 16, 19, 28, 30, 39, 40, 45, 49. See also specific training center schools.  
 Spaatz, Gen. Carl, 7, 11.  
 Special Assistant for the Glider Program Office of, 72, 76, 83. See du Pont, Richard C.  
 Starkville, Miss., Basic School, 45.  
 Stinson Field, Tex., 82.  
 Stout Field, Ind., 76. See also Troop Carrier Command.  
 Stuttgart, Ark., replacement center, 28; Advanced School, 39, 40, 46, 62.  
  
 Technical Manuals, 21, 22, 33, 43.  
 Technical Officer Candidate Schools, 63.  
 Technical Training Command, 51, 55, 56, 63, 64, 66, 71.  
 Testing of materiel. See Materiel.  
 Tests. See Examinations.  
 Texts, lack of, 33, 42, 84; syllabus of weather instruction, 42. See Field Manuals and Technical Manuals.  
 Thermals, use in glider training, 7, 30.  
 Three point attitude, 51.  
 Tow planes. See Materiel.  
 Towing methods, 9, 21.  
 Training, AC/AS, 67, 73, 83. See also Individual Training, Director of, Training Division and Training and Operations Division.  
 Training, officer, 5, 7, 9; transition, 8, 30, 68; combat, 20, 54-55, Class A and Class B, 27-28; time necessary on CG-4A, 49; liaison, 64. See also Pilots.  
 Training and Operations Division, 5, 6, 88.  
 Training Command, 73, 74, 75. See also Flying Training Command and Technical Training Command.  
 Training Division, 7, 12, 13, 88.  
 Transport Wing, 50th, 5, 8, 82.  
 Troop Carrier Command, 33, 35, 37, 44, 50, 54, 56, 59, 61, 62, 68, 72, 74, 76, 78, 79, 81, 85, 87, 88, 89, 90; 1 Troop Carrier Command, 77, 83.  
 Troop Carrier groups, 45, 47, 49, 58, 60; 61st, 37; 63rd, 47, 82; 375th, 82; 403rd, 82.  
 Troop Carrier Squadron, 14th, 82; 38th, 83.  
 Troop Carrier Wing, 50th, 82.  
 Tubbs, Lt. Col. W. L., 65.  
 Tucumcari, N. M., Elementary School, 62.  
 Twenty-nine Palms, Calif., Elementary School, 9, 13, 14, 15, 16, 19, 62.  
 Twin-engine Pilot Course, 15.  
  
 Victorville, Calif., Advanced School, 40, 46, 47, 49, 62.  
 Vinita, Okla., Basic School, 62.

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